THE AMERICAN GAS LIGHT JOURNAL INC.

PUBLISHED WEEKLY, AT No. 42 PINE STREET.

VOLUME XCIX., No. 7. Whole No. 1,993. | NEW YORK, MONDAY, AUGUST 18, 1913. | Subscription, $3 Per Year. $4 Canada, $5 Foreign.

INDEX TO CONTENTS, PAGE 97. - - - - - - - - - ADVERTISERS' INDEX, PAGE 24.

LIBRARY OF CONGRESS, AUG 17 1913 SMITHSONIAN DEPOSIT.

THE UNITED GAS IMPROVEMENT COMPANY,

PHILADELPHIA.

BUILDERS OF

THE STANDARD DOUBLE SUPERHEATER

LOWE WATER GAS APPARATUS.

ACCURATE MEASUREMENT

OF

AIR AND STEAM SUPPLY

(PATENTED),

AFFORDING { **PERFECT CONTROL OF GENERATOR FIRE CONDITIONS.**

PRODUCING { **UNIFORM RESULTS. HIGHEST EFFICIENCIES.**

THE AMERICAN
GAS LIGHT JOURNAL
INC.

VOL. XCIX., No. 7. NEW YORK, AUGUST 18, 1913. WHOLE No. 1,993.

CONTENTS.

An Asterisk (*) Denotes an Illustrated Article.

*Gasholders: Their Construction and Use, a Lecture by Herr Ernest Korting..... 97

*An Old-New Method, by Mr. Frederic Egner..... 100

The Electroscope and How to Construct One, by Dr. L. K. Hirshberg..... 101

Fifth Annual Meeting, Southern Gas Association—Continued from page 90..... 101

First Day, Morning Session—The Industrial Appliance Campaign, by Mr. R. T. Noble—Discussion—First Day, Afternoon Session—Selling Domestic Gas Appliances, by Mr. G. M. Howsmon—Discussion—The New Coal Gas Plant at Atlanta, Ga., by Mr. R. C. Congdon—Discussion—The Question-Box—Second Day, Morning Session—Practical Ventilation, by Mr. McD. Dexter—Discussion.

OFFICIAL NOTICE—

Annual Meeting, Michigan Gas Association..... 104

EDITORIALS—

Briefly Told..... 104

Obituary Note, Mr. Robert W. Prosser—Death of Mr. Charles F. Terhune—The Plan of Travel from the West to Pittsburgh, Pa., Seventh Annual Convention, Illuminating Engineering Society—Special Course in Practical Gas Salesmanship—Current Mention.

Hydrocarbon Motor Fuels..... 109

NEW METHODS AND APPLIANCES..... 92

Reflectors for "Reflex-20" Lamps—*A Unique Window Display—*Thawing Outfit.

Recent Patent Issues..... 110

ITEMS OF INTEREST FROM VARIOUS LOCALITIES..... 110

Personal—Another One—Betterments, Newark Plant, Central New York Gas and Electric Company—Personal—Speaking Well for the Mobile (Ala.) Company—A Good Record by Mr. Owens, La Crosse, Wis.—A Batch of Personals—Still Another—Mr. D. C. Plank Takes Charge at Missoula, Mont.—Altering the Rate Schedule, Elizabethtown, N. J.—Something from Westfield, Mass.—Douglaston (L. I.) Wants Gas—Death of Mr. Michael Ash—Free Natural Gas Clauses—The Athol (Mass.) Company Helps the Project—Plant for Parryville, Pa.—Trenton's Guiding Light—To Build the Hillsboro (Ills.) Plant—Death of Mr. H. A. Sage—The Key West (Fla.) Folks are Importuned—And Other Items.

The Market for Gas Securities..... 112

Meeting Times of the Various Gas Associations..... 112

Public Lighting Table for August, 1913 (Advertising Section)..... 10

Gasholders: Their Construction and Use.

[Abstract of a Lecture delivered by HERR ERNST KÖRTING, of Berlin before the June Meeting, the German Gas and Water Association.]

There is no part of their plant of more importance to gas engineers than the holder, and without it the distillation of coal in the service of central gas supply would be inconceivable.

The system of using a fixed balloon of firm material as a store, and for balancing production and consumption, is part of that foundation of great ideas and discoveries on which our industry was founded, and which made it possible to combat successfully such opponents as mineral oil in the eighties, and electricity at the present day. The gasholder was even more important in the early stages of our industry than it is to-day. Gas was, in those days, used only for lighting; and the production of a whole day had to be collected and was then used up in a few hours. It was, therefore, necessary that the holder capacity be equal to a full 24 hours' consumption, and in London (with its fogs) 120 per cent. or more, was considered necessary. Under these circumstances the gasholder formed a very important part of the outlay on works construction. An old rule stated that manufacturing plant, storage and distribution, divided capital outlay equally between them. In those days, the erection of a gasholder was a more expensive piece of work than it is to-day, whereas retort benches and apparatus were comparatively easy and cheap to build; and the distribution system was not overburdened with services and meters. To-day, heating and industrial gas plays a more important part than lighting gas, and its consumption is greatest in the daylight hours, while extending in some degree over the whole of the 24, and, therefore, only 60 per cent. of the maximum consumption is now required for holder capacity.

Apart from these considerations, vast changes in gas consumption must be taken into account. I made a comparison in Berlin of two winter months, January and December, with the two summer months, June and July. In 1880, the winter consumption was four times that of the summer, three times as large in 1895, and only double in 1912. Last year, the total consumption was 237 times the largest day's output; whereas not long ago 200 times was generally taken. I very much doubt if this development will continue in the same direction and at the same pace. Even in the last few years very little change has been noticeable, and we have perhaps reached the minimum of holder capacity in proportion to sendout. It is not improbable that gas will still lose some ground as a lighting agent, but then a point will then be reached where this will not work so favorably on the equalizing of day and night supply, but rather the opposite. If, in addition to this, domestic heating by gas takes a big move upwards, more storage capacity will again be necessary.

Constructors have contributed largely to the favorable reduction in cost of holders. I endeavor to give in the accompanying sketches, a representative series, showing the development of holders, with a few figures as a basis for comparison. Our holders were worked out on the principle of the large fermenting vats of brewers. A later type is the Cologne holder, with its wooden guides. Then comes the covered holder, Fig. 1, which is still in use as a water tank at the

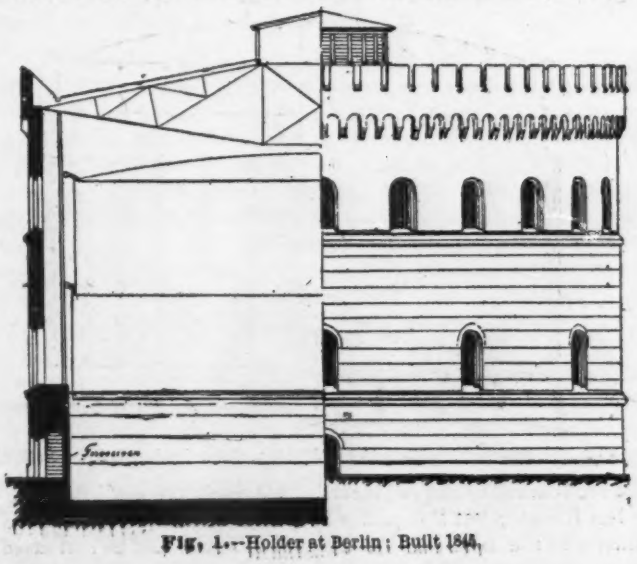


Fig. 1.—Holder at Berlin; Built 1846.

Gitschinerstrasse Gas Works, Berlin. It has a cast iron tank and wonderful old fashioned roof construction. Fig. 2 shows the largest

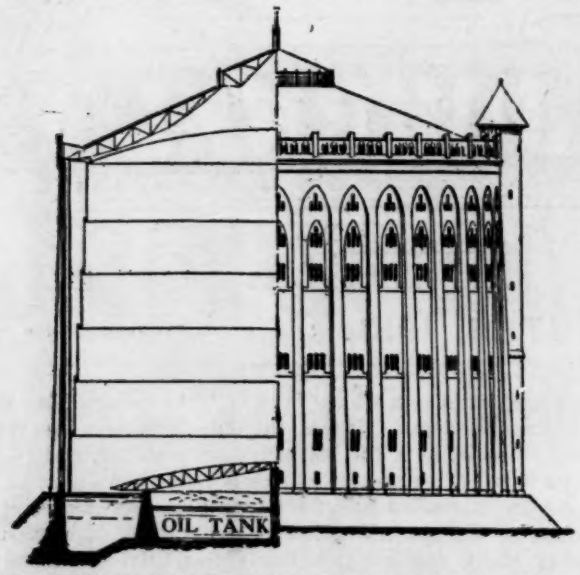


Fig. 2.—The Tegel (Berlin) Gasholder. Capacity 7,944,000 Cubic Feet.

and best gasholder of this type, which the Municipality of Berlin erected at the well-known Tegel works. It is a brilliant piece of architectural work; and, with its height of nearly 300 feet, overlooks all the northern part of the capital. The large number of lifts made a shallow tank possible; but the cost of the tank was high, owing to trouble in laying the foundations. It is curious to introduce an oil store into the tank; but where could oil be kept with less danger from fire?

The next three holders have bricked-in, half-sunk tanks, with exposed framing. The Mariendorf holder, Fig. 3, has a fairly deep

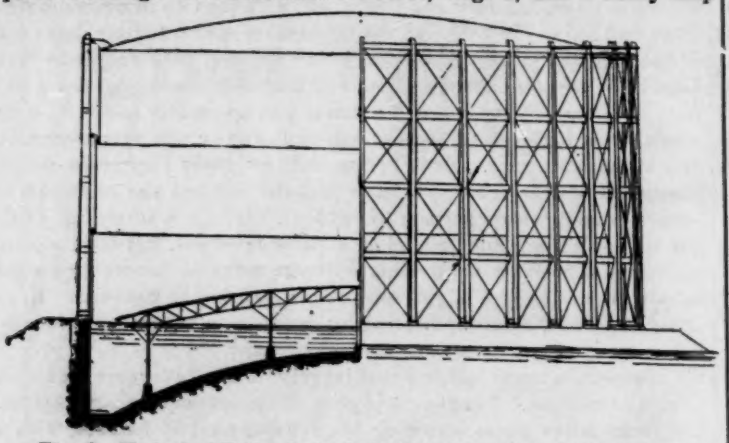


Fig. 3.—Mariendorf Holder, Berlin, built 1902. Capacity 5,296,000 Cubic Feet.

tank, which was somewhat expensive to construct. No doubt the cheapest of all gasholders is the enormous one at East Greenwich (Fig. 4.)—from the designs of Sir George Livesey, well-known as the

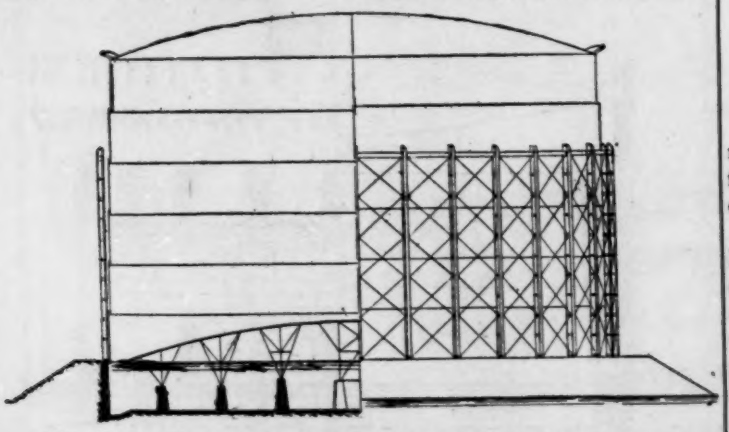


Fig. 4.—East Greenwich, London, Holder. Capacity 12,111,000 Cubic Feet.

most economical of gas engineers. Naturally the shallower the tank, the less it costs; but if capacity is to be increased in spite of this, the diameter of the tank and the number of lifts must be increased. In this case the tank is very wide and very shallow; and there are six lifts, the top two being without any guide framing. The structural work of the tank is very weak, but the solid almost impervious London clay which surrounds it, takes off much of the water pressure. This London holder cost less than half the Mariendorf one, per unit of capacity. So far as I know, there are few imitations of this style, which is not likely to find favor with timid spirits. Look at the instability of the whole telescopic arrangement—a shallow disk is much harder to guide than a tall cylinder—and part of the guiding is omited.

Fig. 5 shows a spiral-guided gasholder. On the outside of the lifts

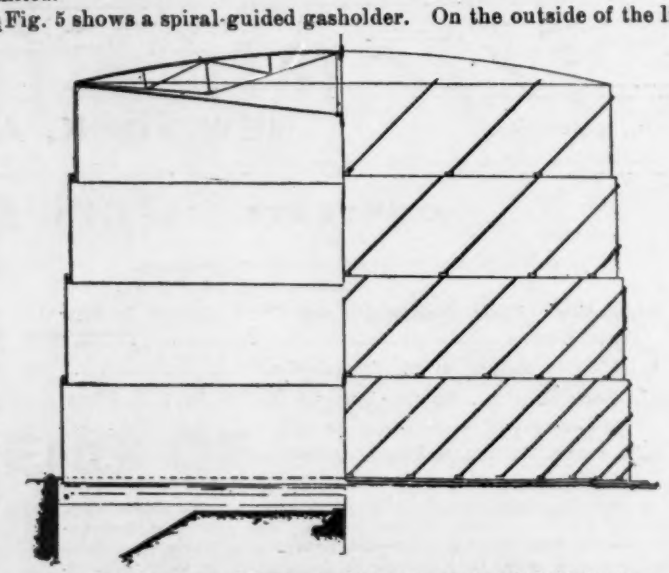


Fig. 5.—Spiral Guided Holder, Wallasey. Capacity 1,624,000 Cubic Feet.

spirally are placed rails, which engage with rollers on the edge of the tank. The lifts screw themselves up and down; the rollers, and the tank, bearing the whole force of wind pressure, which naturally makes necessary a strong tank. There is only one holder of this type in Germany, at Altona. They have had difficulties, from the rails freezing-up in frosty weather. Nevertheless, Canada with its severe winters has several holders of this type.

In Germany, steel tanks above the surface are now almost universal. A good example of this is the Schöneberg holder (Fig. 6). The

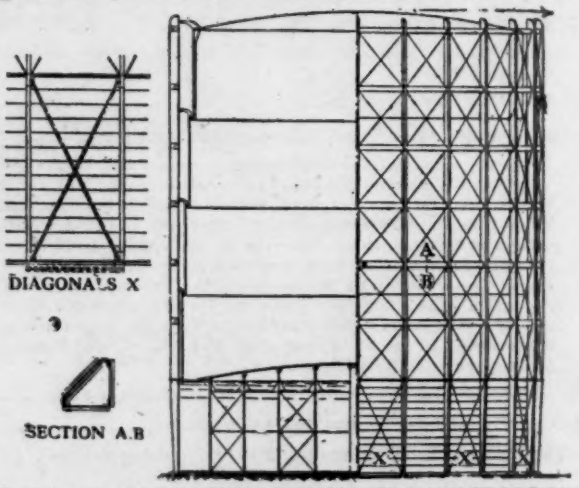


Fig. 6.—Schoneberg (Berlin) Holder, Built 1909. Capacity 5,650,000 Cubic Feet.

most noteworthy thing in its construction is that the wind pressure from the guide framing is transmitted, not to the tank, but by diagonals in the areas x to the foundation wall.

The holder of Briggitenau, the largest on the Continent, shown in Fig. 7, is highly interesting. The weight of iron used was incredibly small, as was also the total cost; but the duties on iron in Austria considerably augment unit prices. With the help of a holder engineer, I have collected the following information, which may prove interesting.

Practical Hints for Building Larger Holders.

1. It is advisable, with flat-bottomed tanks, to dig the foundations so that they slope up 4 or 5 inches to the center, so that, when the tank is filled, if there is any sinking of the ground underneath, the bottom of the tank will not be curved outwardly.

2. The inlet and outlet pipes in the tank and under it are best made

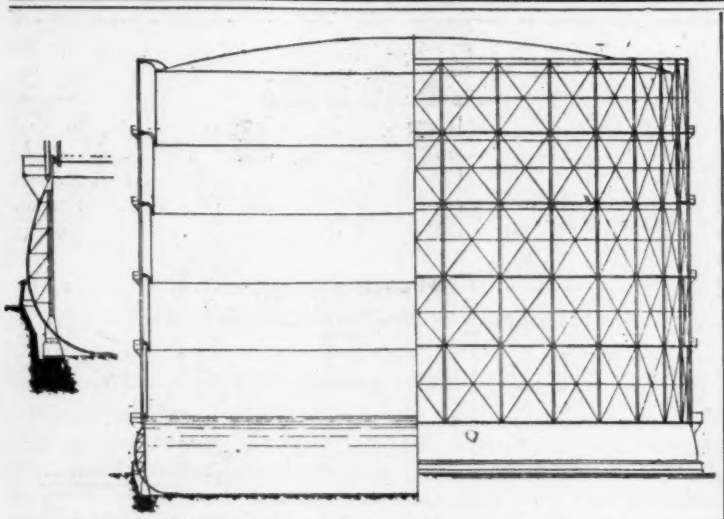


Fig. 7.—Brigittenau (Vienna) Holder, Capacity 8,828,000 Cubic Feet.

of wrought iron. Those under the tank should be firmly cemented in the foundations.

3. The bottom of the tank should be of rectangular sheets, with somewhat thicker sheets at the edge. It should not be less than .3 inch thick; the plates at the edge to be 25 per cent. thicker than those in the middle. The circular-cut edge-plates allow of more symmetrical construction.

4. Fastening the tank ring to the bottom is best done by two angle irons, which are well adapted to transferring the weight of the ring and the guide framing to the foundations.

5. By the expansion of the tank ring under the load of water, tension and compression stresses are also introduced into the joining seams, so the joints must be made with fish-plates. The lower joint of the tank ring is relieved of weight by its connection with the bottom, and the sheets thereby prevented from joining in the expansion of the ring, which causes bending stresses in the plates. These secondary stresses can be estimated if it be assumed that the ring of the tank is fixed rigidly to the bottom. Then there are expanding stresses, amounting to 1½ times the tangential contracting stress. There is no expanding stress, as has been shown by measurements taken on the bottom seam during the filling of a big tank, and the displacements that really occur are much smaller than can be expressed mathematically.

6. Of late a special material has been employed for the ring-plates of gasholder tanks, 30 per cent. stronger than ingot iron, with a guaranteed tensile strength of 76,800 pounds per square inch with 18 per cent. elongation. A double fishplate joint should be used. The use of these special plates with careful joining of them makes it possible to use comparatively thin plates, easy to rivet. Thus a tank 243 feet in diameter and 36 feet deep was erected in Charlottenburg with 1.09-inch plates. As plates 1½ inches thick have been used, it is possible to build tanks of much larger diameter than heretofore.

7. Under the bottom of the tank it is as well to put a wrought iron support, and at the top edge overflow pipes, the ends inside the tank brought as near the bottom as possible, in order that the longest standing water flows out first. To guide the lifts, strong rails are fixed on the inside of the tank, at intervals of 13 to 18 feet. There are generally twice as many of these as of main guides.

8. The guide frame must be so built that the plates of the tank ring are not affected by its weight. The bottom part of the guides may be joined to the tank, but in such a way that all the circular seams are exposed, and can be inspected and painted when necessary.

9. The top edge of the tank, which serves as a walk around for the workmen, is of particular importance. The rigidity of this top curb must be such as to allow of exact shaping of the edge of the tank, and it must also be able to take up any stresses caused by the wind.

10. The guide framing is built of vertical, horizontal and diagonal bars. The verticals serve at the same time for guiding the lifts, and vary in breadth and arrangement according to whether the guiding is tangential or radial. The joints are so made that the stresses transferred from the diagonals to the lattice work and verticals, run through the centers of gravity of the horizontals. The horizontal girders are generally located so that, when the holder is fully inflated, there is one on a level with the top of each cup; from there the cups, rollers, etc., can be inspected. It is best to carry right to the tank foundation any stresses caused by the wind; but in a good many holders the diagonals extend only as far as the top of the tank, and from there the stresses are taken up by the plates of the tank.

11. When there are several lifts, the water seals of the works' apparatus must be high enough for the heavy pressure of the holder. The pressure for 4-lift holders varies from 10 to 16 inches. In order to reduce pressure, the crown is often constructed without trusses, and when the lift is in its lowest position, the roof rests on a support in the bottom of the tank.

12. A very important part of the inner lift is the top curb, which must take up the stresses occasioned by gas pressure on the roof plates. The curb must, therefore, be heavy and must also be such as to give a high moment of inertia, for safety against collapse. The crown in large holders should be double riveted, because it is here that stresses change and vary most. It is the part of the holder most difficult of access, and leaks can easily pass unperceived there for long periods. The walls of the lifts are constructed of plates .098 to .156 inch thick, kept rigid by vertical struts, and at top and bottom are riveted to the heavier cup and curb sheets. The inner vertical stiffeners serve the purpose of guide rails for the rollers on the bottom of the lifts.

13. The cups are now always made of U-iron. It is bent cold and shaped to the same radius as the lift which it is to fit. The rollers are attached to the upper cup, and strengthen the joint between the cup and the plates of the holder.

14. For guiding the inner lift, radial or tangential rollers are used, or often both; while the other lifts generally have only radial rollers.

15 .In order to be able to inspect the rollers, the heating and the water level in the cups, it is advisable to provide each cup with a handrail and platform, so that, whatever position the holder is in, access can be had to each of the cups. This increases the weight of the holder but little. A handrail on the crown is required by law. Water and steam should be piped to each cup, and it is advisable to have an indicator to show the height of the water in the cups.

16. The inlet and outlet pipes should be as far apart as possible, so that the gas entering the holder cannot immediately pass out. Various inventions have been made to insure the mixing of gas in the holder.

Gasholder Costs.

I call your attention to the accompanying table showing the costs of the holders I have taken as types. The variations in the weight of iron and costs of constructions are striking. Considering that the foundations, the material, and such additions as the oil tank in the Berlinholder, are no small items of cost, it is obvious that some forms of construction have a very great advantage over others. We should do all we can towards economical construction, but there are tombstones on this road to cheapness; Hamburg, Ilkeston and Vienna. Let us consider whether the road we are accustomed to take is free from objection.

Description of Gasholder.	Capacity.	Weight of Iron Work.	Total Cost.	Cost Per 1,000 Foot Capacity.
Berlin, Tegel.....	7,946,000	1,810	$534,000	$67.20
Mariendorf.....	5,297,000	1,683	315,000	59.46
East Greenwich, London..	12,108,000	2,186	319,400	26.34
Wallasey.....	1,624,000	520	71,500	44.03
Schöenberg	5,648,000	3,454	289,000	51.17
Vienna, Brigittnau.....	8,750,000	26,385	334,500	38.23

The Ilkeston testimony showed that the tank was not sufficiently strong. Why, asks Sir Corbet Woodall, did the manager there construct on his own responsibility? Why did he not take the advice of an experienced engineer? Such matters are singularly governed in the United States, as I was able to observe quite recently. There reference is not made to a consulting engineer, but to one or two large gasholder contracting firms, who enjoy general confidence. The head of one of these companies said to me; "We build only heavy, solid constructions at a good price, which gives a fixed profit. If anyone else offers a much lower price, he immediately arouses suspicion, and his chance disappears entirely." This state of affairs, while not conducive to the introduction of improvements, is an excellent protection against flimsy construction, and it is possible because the industry is almost entirely in the hands of private companies. The engineer of such a company can say: "I prefer expensive and solid construction." But managers of municipal concerns are accused of extravagance at the public expense, if they refuse lower tenders. Competition drives the contractors to the limit of light construction. No doubt many improvements are effected under

such a system, but who is to take the responsibility? Morally, no doubt, the Council, who had given out the tender, but they are in no way qualified to do so. My point is that, if the present methods of tendering are to continue, the only way out of the difficulty is to employ a first-class engineer and mathematician, to test everything thoroughly, and insist on a good factor of safety.

An Old-New Method.

[Prepared for the JOURNAL, by MR. FREDERIC EGNER.]

Under the caption of "New Methods and Appliances," page 76, of JOURNAL for 4th inst., you make mention of a "New System of Carbonization;" which same is quite interesting but not new. At least the conception of the system mentioned is not, for it was patented in this country June 4th, 1889, under serial No. 404,404, and copies of the drawings and specifications (which are quite explicit) may be obtained through the usual channels. The title of the patent is, "Apparatus for the Manufacture of Fuel and Illuminating Gas." That, with the date and number given, will enable any of your readers to get copies of said patent, which, having expired long ago, may be freely used by any who care to try it. Moreover, the idea is practical and the writer, at least, thinks very good.

The story, as to how the invention came to be evolved and a patent obtained is rather unique; so I submit it to you for personal information or publication, just as you please. It was about as follows: Early in January, 1889, Mr. J. W. Harrison, then President of the former Shickle, Harrison and Howard Iron Company, of St. Louis, Mo., came to my office (at the foot of Mulanphy street) in the city named, and opened a conversation about as follows, without preliminaries, thus addressing the writer: "I wish you would go ahead and invent a new apparatus for making gas. I will pay all expenses, and we will go halves in the profits." That actually was the statement made by Mr. Harrison, who was known to be somewhat eccentric although reputed to be a multi-millionaire. On laughing at said proposition, Mr. Harrison said he meant what he said, and told me to go ahead. Somewhat piqued the writer thought he would take up the proposition. He accordingly tried out (at his laboratory in a small way) an idea which came to him, in the course of thinking it over for a night or two, with the result, it seemed plain, that gas coal could be carbonized or coked by driving superheated gas or even steam through it. This fact had been stated publicly, more than once, at one or another of our old gas association meetings, and you may have published the same years ago, though number and date of publication cannot now be given off-hand. The specifications of the patent mentioned were accompanied by two sheets of drawings, reproductions of which are here given. Fig. 1, is a plan, Fig.2 being a side elevation in section of the proposed apparatus. Briefly like letters refer to like parts as to both sheets of drawings. *W*, *G*, indicate ordinary water gas generators; *R*, a pair of superheaters; *C*, is a carbonizing vessel operated in conjunction with the generators and superheaters aforesaid; *B*, represents an ordinary horizontal retort bench. The idea was to produce blue water gas and superheat it, then drive same through raw gas coal in vessel *C*. From thence it would be conducted through the retorts and still further carbureted, if desired, or made a more perfectly fixed gas if found necessary. The gases of combustion of the generators was to be used in the fixing chambers in the usual way; then the surplus of unconsumed gas remaining was to be conducted into the combustion chamber of the retort bench.

After the patent was granted, the writer was disappointed by Mr. Harrison apparently paying no further attention to it, though he had, and the writer had not, the means to put the idea into working shape. Some years later, however, it seems Mr. Harrison sold his rights to a Philadelphia concern which has long since ceased to exist, while all the writer obtained from the thing was the actual cost of obtaining the patents, the drawings having been made by himself when lack of other official duties permitted.

The claims of the patent mentioned are as follows:

1.—The combination of a water gas generator or producer, a superheater which receives the gases from the generator, a coal distilling chamber which receives the gases from the superheater, and a bench of retorts to which the gases and vapors from the coal distilling chamber pass directly, the whole connected and adapted to operate substantially in the manner hereinbefore set forth.

2.—The combination with the water gas generator or sets of generators, superheaters (one for each water gas generator or sets of

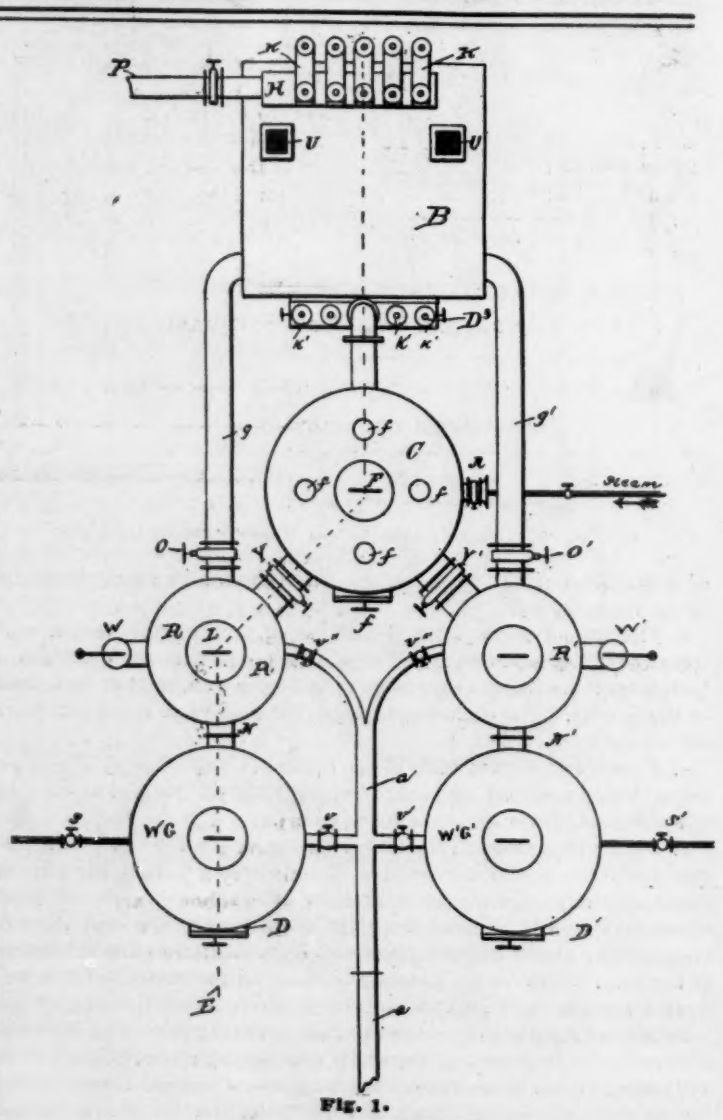


Fig. 1.

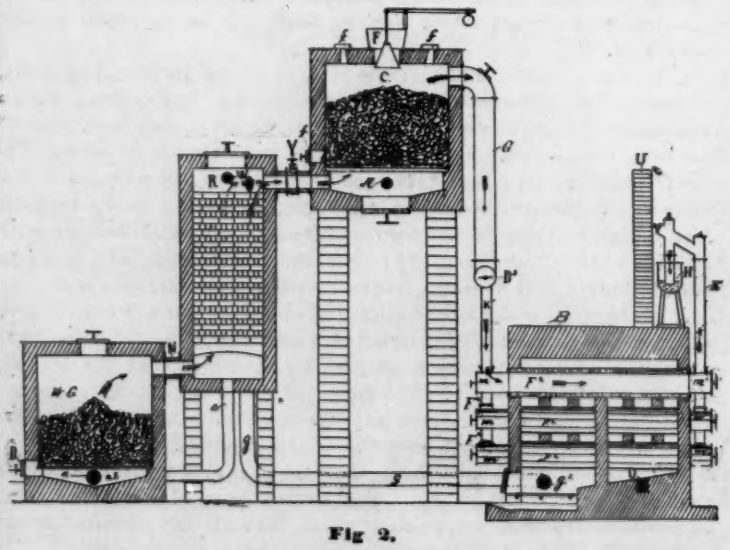


Fig 2.

generators), and the coal distilling chamber common to said superheaters; these elements being constructed, connected together, and adapted to jointly operate substantially in the manner and for the purpose hereinbefore set forth.

3.—In combination with the retort bench and the coal distilling chamber, the regulator or superheater provided with three valve-controlled outlets, the one leading to the atmosphere, the next to the coal distilling chamber, the third to the combustion chamber or furnace of the retort bench, substantially as and for the purpose herein before set forth.

4.—In combination with the superheaters and retort bench, the intermediate coal distilling chamber, connected on the one hand with the superheaters and on the other hand with the retorts, and provided with air and steam inspirator, substantially as and for the purposes hereinbefore set forth.

If Dr. Strache, more fortunate than the writer, secured the needed backing, and has brought the invention to a practical and working conclusion, he certainly deserves credit for it; and, moreover, he has my hearty congratulations and good wishes for absolute success. But if American gas men wish to operate the method, they can do so without having to pay any foreigner or any other persons one cent in the shape of royalties or for patent rights, as plainly evidenced by this American patent of 1889.

The Electroscope and How to Construct One.

[By Dr. Leonard Keene Hirshberg, Johns Hopkins, Baltimore, Md.]

Boys, and other amateur electricians, who wish to know exactly what an electroscope is, as well as to have one handy with which to experiment, may now make one for their own use. A simple method proposed by Mr. Charles E. Benham is to obtain some aluminum leaf foil, place it between the leaves of two sheets of writing paper and then cut through the three layers with a pair of scissors. Next, a discreet, careful separation of the cut foil from the adhering edges of paper, is necessary, or the foil will be torn or crumpled. To prevent any damage to the foil, place the sheets down, with the foil uppermost, upon smooth paper. Upon the top of the foil, place a sheet of warmed writing paper, or iron lightly the sheet that is already present. Hold the sheet firmly at one edge, to keep it from shifting, and pass a dry hand quite lightly over it. This will electrify it from the slight friction of your hands, and, as you lift the hand, the foil will be found adhering to it. After the paper has been done, the next step that confronts the beginner is mounting the aluminum foil upon the strips. The method depends upon whether two leaves are to be used, or only one leaf to be repelled by a fixed strip of metal. If two foils are to be used, two strips of cardboard are coated with tinfoil, an inch long and about that width, which is the width of the foil. The two bits of foil are placed on the width of board. The two cardboard strips are covered about ½-inch after the lower sides have had a light trace of glue or paste run over them. The two may then be lifted with the fixed foil and placed face-to-face.

Perfect insulation of the conducting wire which supports the leaves is now important, and sulphur is probably as good as anything else. After a strong wire has been through the central part of the bottom of a cardboard pill box, melted sulphur is poured in from a ladel. The bottom of the box is greased so that it may be easily detached when the sulphur has set. Before the sulphur is poured in it is advisable that a few notches be made in the wire where the sulphur is to surround it, so that there will be no danger afterwards of the wire slipping. The wire is preferably of such length that it will protrude above and below the sulphur, for an inch at least. The lower end of the wire should, first, be soldered to a short strip of thin sheet lead, which can afterwards be bent back in itself twice in an s-shape. The card strips bearing the aluminum leaves are now placed in the fold of the lead, and a nip with the pliers holds them firmly in place. In the same way the lead can be made to grip the top of the metal strip that bears the single leaf, if this kind of electroscope is adopted.

Now, a perforated brass ball is placed as a terminal, at the end of the wire which projects above the sulphur. This must be removable in order to allow a plate to be at any time substituted for more delicate measurements. This plate or disk should also be made of brass or copper, a little tube of brass or copper, about ½-inch long, being fixed vertically and centrally from its lower part. Such a tube is easily made by neatly rolling a strip of thin copper around the wire, then soldering it along the joint. The upper surface of the brass plate should be well-planed and coated with shellac or other varnish. A similar disk, varnished upon its lower surface, and having a metal or wooden handle fixed vertically to the center of its upper side, completes the condenser.

The sulphur-covered, paper pill-box should be fixed vertically in the top of an appropriate chalk box or other convenient case. If a chalk box is used, the sliding lid can be replaced with glass, and this is then turned to form the front of the electroscope. The interior of the box must be lined with white cartridge paper. What is now the top of the box (a side) has a hole bored in it just large enough to hold the pill-box, which is glued into it. The brass ball or disk is now above the bottom of the sulphur-covered pill-box, and it is supported by the end of the wire which protrudes above. The aluminum leaves have an increased sensitiveness if two upright metal strips are placed, one on each side of the metal leaves. These strips cause the foil to lose their charge when they diverge beyond a certain limit. Sheet lead, well black-leaded, says Mr. Benham, makes good strips such as these. No other surface is so free from the tendency to adhere when the leaves touch it. If they do, a tap upon the side of the box will set the leaves free. The strips themselves may be mounted on metal rods that pass through the sides.

To use the condenser the top plate is put on and a thin wire connects it with the ground by way of the wooden chalk-box. With these high potentials wood is an excellent conductor. A thin wire is attached to the socket of the lower plate, which should project a few inches horizontally as a conductor in order to test the discharge. The minutest discharge given to this will manifest itself by a wide divergence of the leaves whenever the top plate is lifted by its handle.

As a test experiment, place your newly-made instrument near the window of an upper story room, leaving the window slightly open, so that the upper air may flow in. Then, connect the electroscope to a lighted lamp, placed in the draught from the window, on a well-insulated table covered with something like paraffine.

Now, withdraw the electroscope from the lamp and lift the top condensing plate. At once the leaves will diverge from the outside atmosphere. In place of the lamp you may take any radiating or radioactive substance in order to test the effect of the electricity present in the air. Finally, aluminum foil is easily obtained from druggist, chemist and paint stores, and those who sell silver leaf, gold leaf, and the like.

[Continued from Page 90.]

FIFTH ANNUAL MEETING, SOUTHERN GAS ASSOCIATION.

Held in Selwyn Hotel, Charlotte, N. C., April, 1913.

First Day.—Morning Session.

The President here asked Mr. Hoyt to read the paper by Mr. B. F. Noble (Montgomery), entitled,

THE INDUSTRIAL APPLIANCE CAMPAIGN.

To launch such a campaign, a comprehensive industrial gas exhibit was installed by the Montgomery Light and Water Power Company last September, with the assistance of Mr. John M. McMillan, of the Improved Appliance Company. The industrial gas show has been so frequently described that it is not necessary to go into details of what it is. Nevertheless, different localities and different conditions make the putting on of a gas show a matter for no little thought. After being notified of Mr. McMillan's intention to arrive at a certain date, we took preliminary steps to notify the public, by suggestive and appropriate advertising, of our intention to hold a big industrial gas show. However big an industrial gas show may seem to us, it does not necessarily strike the public, unless it is put in the right light. This we did by sending out circular letters and cards, calling attention to the show, and insisting that all manufacturers and consumers interested should not fail to be present at a show which presented such unusual opportunities to acquaint them with the uses and possibilities of gas as an industrial fuel.

Upon Mr. McMillan's arrival, we immediately installed the industrial appliances to be shown in our upstairs auditorium. We figured that this would bring hundreds of people into our place of business who otherwise would probably never come. We placed the appliances in line around the walls of the hall, and had the appliances which we intended demonstrating connected with gas. This left quite a good deal of room in the center of the hall, which we used for chair space for the audience, making it as comfortable as possible. We then filled our windows with industrial appliances, seeing to it that they were placarded with descriptive price cards. We also brought forward all the industrial appliances in our storeroom, and gave them a prominent place in the foreground of our display. This galaxy of appliances necessarily attracted the attention of everyone who came in, and one could very often hear the remark: "What is going on here?" or, "What are all these funny looking things setting around?"

The public did not have long to wait to find out, for the next day, in our morning paper, the following full page advertisement appeared:

INDUSTRIAL GAS SHOW.

An industrial gas show will be given, by the Improved Appliance Company of New York, under the auspices of the Montgomery Light

and Water Power Company, from September 10th to 13th, inclusive, at the Company's auditorium, 111 Dexter avenue. This exhibit is for the purpose of introducing the latest type gas appliances for industrial purposes. Every manufacturer interested in fuel and labor cost is urged to attend. Mr. McMillan, a well-known New York expert, will lecture on fuel cost and economy in manufacturing. Plan to attend.—MONTGOMERY LIGHT AND WATER CO.

This advertisement was inclosed in a cut of a large cauldron, steaming hot, a cool and comfortable looking cook stirring the contents with a paddle. This cut we thought was very attractive, and we have had occasion to use it several times since. On Wednesday we advertised a demonstration of butchers' appliances, such as rendering kettles, ham boilers, etc., and so on, with the other appliances each day, until we had completed the list.

We followed this announcement with other advertisements, giving the time lectures would be held, and on what date and hour certain appliances would be demonstrated. For example, on Tuesday of that week we especially urged hotel and cafe men to be present to see us bake, broil and toast. We further stated that the chef of one of the local hotels would do the baking. This gave the hotel a little lift, and added a personal interest to the occasion.

Of course, we followed this with personal calls on the prospect. Our entire soliciting force was sent out to give verbal invitation, and, if necessary, bring the interested ones around. "Come around this afternoon at 3 o'clock." "Come see how it is done with gas," they would say. This personal interest naturally had its effect, and we succeeded in getting lots of people whom we did not expect. Even the telephone was resorted to before meeting hour, calling attention to the time for demonstration, and another little invitation to come around, such as, "We expect you. This is an opportunity you do not get every day. It will only take a few minutes of your time," etc.

So much for the advertising. These methods are not new, but we must agree that advertising of the right quality is the only way to bring in the public. Now, since we have gotten them in, let us show them in a good, practical, easily understood way, just what it means to them to use gas for industrial fuel purposes.

The various appliances were set up in working order, and practically all of them actually demonstrated. At the hotel demonstration, bread and pastry were baked, toast made and steaks broiled. All present were requested to try some of the cooking. At the demonstration for the butchers 100 pounds of fat were rendered into lard. For the confectioners, a 30 pound batch of candy was cooked, pulled, cut and put into sacks, and given to the audience to try. The printers' melting pots were also demonstrated. The demonstration of shop equipment affords the prospect not only an opportunity to see the appliances themselves, but gives them an idea how to work with gas. Our lecturer very ably explained each appliance, going into minute detail as to its special advantages over coal and other fuels.

We had on exhibition most every conceivable appliance: Confectioners' blast furnaces for making candy; cauldron furnaces for rendering lard, cooking potato chips, etc.; bake ovens for bread and pies, soft metal furnaces for linotype melting; brazing tables for welding brass; rivet heaters, japanning ovens and a great many smaller appliances more commonly used, such as toasters, broilers, grillers, plate warmers, soldering furnaces, and individual burners.

The modern gas furnace has displaced those using other fuels for these purposes because: The gas furnace is efficient, and all the heat in the gas goes into the material handled.

A gas furnace occupies about one-half the space utilized by coal-fired furnaces. There is no expensive storing or handling of coal or coke. There are no ashes. There is neither dust nor dirt. There is no smoke. The temperature is constant.

By turning a valve one way and lighting the gas, all the fire you need is there. Turn the valve the other way, and the fire is out immediately.

Aside from the fact that this gas show sold numbers of appliances for us, and generally gave the manufacturers in our town a concrete idea of the many advantages gas has over other fuel, it had a great tendency to educate and broaden our gas salesmen, giving them more thorough ideas and information about industrial appliances, information they could never learn from books nor from any source other than actual demonstration. Our lecturer gave a complete explanation of all the appliances shown, also the approximate consumption of the different appliances, a record of which we had taken down and filed for future use. Suffice it to say that our gas show was a complete success, even based on the number of appliances sold, and the Company felt fully repaid in actual dollars-and-cents for the expense to which it had gone. Due credit should be given to the man who originally conceived this idea of an Industrial Gas Show.

Discussion.

The President—Our industrial gas show as the paper narrates, was a success. Our industrial business is at least 50 per cent. greater than it was before.

Mr. Bowlin—In selling industrial appliances it is easy to make the sale, but it is hard to make the appliance stick. I want to hear how other companies maintain their industrial appliances, and how they keep the appliance in use. Do you have a fitter go around and inspect them monthly; or do the salesmen do this?

Mr. DeFrese—We have just started in the industrial field in Chattanooga, and find it very profitable. We haven't installed a great many appliances, but they have all stuck. The first was a candy factory using coke. The convenience of the gas and the elimination of heat were sufficient to keep it there. In using coke, after a batch of candy was cooked, and the kettle taken off the furnace, probably for 40 minutes (between batches) this furnace was heating the atmosphere. We told the manufacturer that if he used gas the heat loss would be eliminated. He thought so, too, and we installed the furnace, later on installing three others. We put the matter of maintenance up to him, and told him that we would take care of that, or he could have his engineer do it. His engineer takes care of them. We demonstrated what could be done if care were exercised; if he didn't do as well, it was up to his employees. Working the same plan with a large hotel range, we had our new business man stay with it 2 or 3 hours a day to show them exactly what it was doing. We did that for nearly a month, and they were completely satisfied. We had one complaint of high gas bill and on investigating it, did as we did at first to show them what they could accomplish if they looked after the gas supply properly. I believe the solution of the industrial gas business is that, where applances are installed, it is necessary that we have a maintenance service.

Mr. Howsmon—Our industrial show was handled as in Montgomery, perhaps not going into the advertising game quite as extensively. We didn't spend so much money putting on the show, and sold a soldering iron furnace. The show was held last winter and we did not expect immediate sales. Since then, as a direct result, we have converted from gasoline, one 35, one 25, and one 10-horse power engine; have installed 4 hotel ranges, 6 industrial burners, a couple of rivet heaters, and some expensive material, all of which I feel came directly from that effort. Our plan is to give them a fearless trial, and we have removed only one industrial burner. The "following up" is open to discussion, but I take exception to the suggestion of maintenance by smaller companies. It is absolutely essential for large companies; but we have kept away from it. I never send a fitter back unless there is trouble with the connections. Dealing with the buyer himself is a question for the industrial man, and he must grow up with his local conditions. I find this especially successful, because our man who looks after that work studies books, people, and climate, and so he is the man to deal with the installation after it is made.

Mr. Bowlin—In Jacksonville we have a maintenance service for automatic water heaters, which is one of the best things we ever started. We have a fitter who makes monthly inspections of the heaters and adjusts them. What I particularly wanted to know was whether others found it better to take a fitter or to take a salesman.

Mr. DeFrese—We use a special fitter, who goes with the industrial engineer. The industrial engineer, thoroughly understanding the appliances, instructs the fitter. This fitter is the man we send on complaints. He answers these complaints, and knows the appliance because he installed it under the supervision of the industrial engineer and is, therefore, the proper person to look after it in case of trouble.

Mr. Bowlin—Does he make regular monthly inspections or only answers complains?

Mr. DeFrese—He only answers complaints. We have no regular monthly inspection.

Mr. Sligo—Has he to deal with colored cooks or white chefs, with these hotel ranges?

Mr. DeFrese—We have both. With the colored cook we have considerable trouble. We installed a hotel range in the Y. W. C. A. building. It was left entirely to the care of a large colored woman who believed in using gas, and she was the best agent for the gas

ompany I ever knew. She could keep all 8 burners going just to heat a kettle of water. It was satisfactory to us, but not to them. We took it up with the lady in charge, who told the cook that, unless our instructions were followed, she would have to get a new job. We find that a good way to work. To show the persons responsible, what can they accomplish by proper use of the appliance and then put it up to them.

Mr. Sligo—We installed in a Raleigh restaurant a hotel range. They had colored cooks and negro men, without any white chef to oversee their work. If we watched the range closely, staying right there with them and kept the consumption down, it would do excellent cooking, but as soon as we left they would keep on the burners and not try to economize, hence at the end of the month the bill was very large. We ran this test for 2 months, and the proprietor, while very well pleased with the results, thought the bill was too high. He said "I can't stay in the kitchen all day and make them turn the gas down." We sent a man daily to read the meter, to see if the appliance was in good adjustment, only to find that, after we left, the cooks would turn the air adjustment thinking they were getting more heat from a big, yellow flame. These cooks got small wages, so there were frequent changes in the staff; but not being able to secure the co-operation of the proprietor, we could not make the cooks take any interest in keeping down the gas consumption.

The President—It brings us down to the proposition that we must educate the negroes; 60 per cent. of the population of Montgomery are negroes; but we have gas appliances in the principal restaurants and the hotels, operated by negro cooks, and in a restaurant recently destroyed by fire we will re-equip with an all gas kitchen, broilers, toasters, coffee urns, and everything that we can possibly get into it. In an experience with an oven we were able to bake just twice as much bread with gas as with the coal, but we were wrong in trying to adapt gas to an old style oven. We didn't go deep enough into the proposition, and the appliance was thrown out by our own fault. If we had completely revamped the proposition and thrown out the old-style brick oven replacing it with a new style type, or else waited until the proposition was more ripe, I think we would have had greater success. But we don't get discouraged because we get thrown down two or three times. We must get the industrial field, as we have very little other outlet for gas.

Mr. Congdon—The great difficulty in educating colored people in the use of appliances is that they don't want to be educated. If we could only get them to learn, we might accomplish something with them. We don't accomplish anything with the negroes unless we can show them where they profit by it, and you have to fix some reward. My thought runs principally to that household appliance, the kitchen stove. I tried some experiments in my own home, having a meter put on the gas range separate from the rest of the house, and a governor to eliminate variable pressure. I tried to see what I could do with a negro cook, but it was impossible to gain anything from all the instructions I gave, and had given, until I placed a limit on what I was willing to pay for cooking during the month. I told my negro that I would pay a $6 gas bill, and that she could have all under that. That was some inducement, for the first month she got 25 cents, and later on, considerably more. We have some inspectors chosen from our own shop force, who have been with the Company, in some instances as long as 25 years, who are thoroughly practical, and, because of their long experience in handling appliances, know a good deal about them. All of our commercial appliances are visited once a week or oftener. The meters are read and the quantity of gas consumed during the week, told to the person in charge. If anything is wrong with the appliance, or if it needs adjustment, it is done without charge.

Mr. Ferrier—One phase of the industrial campaign has not been touched upon. Most of us have found if we are doing a fuel business (household only) that our distributing system is practically idle for about 20 hours a day. The great value of industrial business is that it is going on when the household appliances are idle, and, by adding an industrial section end, we can do a greatly increased business with our present capitalization. That is one reason we should make some sacrifice to get industrial work.

Mr. Bowlin—One of Mr. Congdon's strongest points towards keeping down gas bills is in providing inducements for the cook to keep down the bills. As to several hotel installations, we tell the manager, after he has had his second or third gas bill, and so gets an idea as to what his bills may average, to inform his chef that he will lay aside every month so much for gas, and that all under this amount will belong to him. In one place the chef made $25 the first month, and the hotel saved $75. If you suggest that plan to the proprietors, you will retain a great many more hotel installations.

Mr. Radcliff—In Columbus, we have followed that plan, and have some customers who also employ negro cooks. Of course, we endeavor to have the chefs see to it that the use of gas is kept to the minimum.

Mr. DeFrese—This very interesting paper should be discussed by every gas manager present. There is an excellent opportunity to-day for gas companies to sell gas through industrial appliances, and many are making lower rates to enlarge sales on this account. It is a most timely paper, and should be given the discussion it deserves. In Chattanooga we reduced our rates to get the manufacturing business, which shows how we feel about the matter. It is our aim to sell gas for every purpose to which it is adapted. We have 300 manufacturing plants employing about 15,000 people, and are in the heart of the bituminous coal district, where coal is delivered on your siding as low as $1.30 per ton. Yet I believe there is a great field for gas for industrial purposes, and I believe it is the coming thing.

Mr. Walker—About a year ago we sold in Beaumont, Tex., 4 hotel gas ranges, but we were not able to keep them in use, since gas fuel costs more than coal in our location. After a 5 days' test we were convinced that, to compete with coal for this nature of business, we would have to make a much lower rate than would be advisable. It might be policy to take on hotel or industrial business, which means the use of large quantities of gas, even though we have to make a rate to compete with other fuels that shows but a nominal profit on the cost of the gas in the holder. The electric companies find it good practice to make low rates to large consumers, and my opinion is gas companies would not suffer from such policy.

Mr. Dexter—I will mention one or two more uses we have in Columbus. In a Columbus newspaper office, in addition to the linotype machine, is a melting pot, which metal is re-cast into ingots for the machine. It has worked so well that we have lately added a similar burner under a 4-foot pot for melting stereotype metal. We also have in that office a gas fired boiler operating a double-platen press. Another good class of business is in a knitting mill, where the finished socks are singed by gas flames, and we have a good prospect in a yarn mill for singeing finished yarn. If we can respond to this, we can get 1,080 Bunsens to run 10 hours a day, meaning possibly a consumption of ¼ million cubic feet per month. Both our railroad shops are equipped with shrinkers for removing steel tires from the driving wheels of the locomotives. I mention these as indicating some of the field for industrial uses.

On motion an adjournment to 2 P.M. was ordered.

FIRST DAY—AFTERNOON SESSION.

The President introduced Mr. G. M. Howsmon, who read his paper on

SELLING DOMESTIC GAS APPLIANCES.

[For the text of Mr. Howsmon's paper, see *ante*, July 7, p. 10.]

Discussion.

The President—Listening to this paper, we could not help being impressed with the fact that the author has been there, and we can profit by some of his mistakes as well as by some of the good things he did.

Mr. Marshall—I started an arc light campaign this January and found that the cost of this lighting agreeably surprised the people. Of course, they have high bills for December, and we had no trouble in explaining that the lighting hours had increased. Of course, all kinds of advertising methods can be used to increase business. We carried on a very effective campaign with postal cards sent once every week, dealing with the gas range particularly, and we were very agreeably surprised at the volume of business it brought. Our recent experience has been more with small towns, and I find that we must keep in touch with the people all the time by some form of canvassing or advertising. It is imperative to keep a continual "stir-up," and, in my judgment, in the smaller towns one cannot do that by a house-to-house canvass as one would do in the larger towns.

Mr. Ralston—Mr. Howsmon says very positively such campaigns are successful. His light campaign was successful, and he tried a campaign supervised by an outside agency, or in charge of what might be called a manufacturer's agent. The major part of his paper refers to the possibility of getting manufacturers to carry on campaigns for the gas company, and I hope this point will not be overlooked by the

(*Continued on page* 106.)

THE AMERICAN GAS LIGHT JOURNAL INC.

Entered at the Post Office, New York City, as Second-Class Matter.

Published weekly at 42 Pine Street, New York City.

Telephone Call, John, 2996. Cable, Am-Gas.

E. P. CALLENDER, President.
A. M. CALLENDER, Vice-President and Treasurer.
CHARLES H. WADELTON, Secretary and Manager.

THOMAS J. CUNNINGHAM, SANFORD K. CAMPBELL, } Editors.

Agents—American News Co., 11 Park Place, New York City.
Lemcke & Buechner, Berlin, Germany.
Aug. Siegle, 30 Lime Street, London, England.

TERMS OF SUBSCRIPTION.

United States, Cuba and Mexico, $3 per year. Canada, $4 per year. All other countries, $5 per year.
Single Copies, 10 Cents.

NOTICE TO ADVERTISERS.

New Advertisements and changes of copy therefor should be in hand Wednesday noon of week prior to date of issue.

NEW YORK, MONDAY, AUGUST 18, 1913.

[Official Notice.]

Annual Meeting, Michigan Gas Association.

Michigan Gas Association,
Office of Secretary,
Grand Rapids, August 12, 1913.

To the Members, Michigan Gas Association: Did you ever hear Mr. Herbert N. Casson talk to the gas men? Did you ever hear him talk to anyone? Well; there is a great treat in store for you at the next meeting of our Association, for he will then talk to us on the subject of "How to Get Gas Across." Mr. Casson is great. He makes you laugh, cry, "sit up and take notice," and applaud his forcible, entertaining arguments, with his original ideas of modern business building. Then, too, we will have some mighty good papers, as witness:

"Practical Effects of the Workmen's Compensation Law," by Mr. Albert G. Schroeder.
"Gas Advertising," by Mr. Alonzo P. Ewing.
"The Increased Cost of Gas Making Materials," by Mr. B. O. Tippy.
"Educating the Public," by Mr. Ernest F. Lloyd.

Among other things our entertainment programme will include an afternoon boat trip and supper at Bois Blanc. On the boat we will have another good talk by a very prominent newspaper man, who will tell us some things that we all ought to know. A meeting in Detroit always brings out a big crowd, and this promises to be one of the big meetings.

The city, Detroit; the place, Hotel Pontchartrain; the time, September 17, 18 and 19th. Make your hotel reservations now.
Yours very truly, Glenn R. Chamberlain, Secy. and Treas.

BRIEFLY TOLD.

Obituary Note, Mr. Robert W. Prosser.—All of the old-guard gas engineers, and many of the younger ones, will learn, with sincere regret, of the death of Mr. Robert W. Prosser, who passed away, at his home, 65 Bainbridge street, Brooklyn, N. Y., the night of the 6th inst. Born in Birmingham, England, November 28th, 1845, while still a youth he entered the service of the Tangye's, possibly at the time, and for years after, the most prominent firm in England connected with gas plant construction. In fact, some of the work done in that even then huge establishment was along original lines, and the principles of which stand as representative to-day as in the time of three-quarter century ago. In 1867, an opportunity presenting itself for advancement, in connection with an offer from the firm of Hoy, Kennedy & Co., of New York (also in its time very prominent in American gas plant construction), he joined its shop forces. The concern shortly afterward became known as the Atlantic Dock Iron Works, the plant (including foundries) of which was located on Conover and Van Brunt streets, and Seabring street, just back of the middle section of the Buttermilk Channel part of the famous Atlantic Dock and Basin warehouse system. His ability for absorbing the detail of this work, his unflagging industry, and his studiousness soon attracted the attention of other gas works' plant manufacturers. About 1869 he entered the service of the Camden Iron Works, Camden, N. J., and if the writer makes no error, he later on became affiliated with the house of R. D. Wood & Co., of Philadelphia. From thence he went into the service of Messrs. Bartlett, Hayward & Co., of Baltimore, Md., and it was in this service that his fame became really international. And it would have been positively far greater, were it not for one peculiar personal trait, that of a positive desire not to be known publicly in anything. With the great Baltimore concern his progress was according to its growth, which was really remarkable in the period between 1873 and 1898. He was an adept in all descriptions of gas plant designing and the constructing and erecting of machinery connected therewith. It might be difficult to say in which respect he excelled, but the writer can knowingly assert that holder construction was his stronghold; and many of the leviathan storage vessels that now either dot the outskirts of our cities or are walled in their centers could bear strong testimony to the skill and perception of Robert W. Prosser. He was an inventor of note, his successes in this direction, however, inclining rather to the perfecting of details than to the discovering of new principles. He often contributed to our columns, and his articles were never rejected. He was particularly happy in his relations with the Bartlett-Hayward concern, being in the closest personal relation to that Prince of gas plant constructors, the late Mr. Thomas J. Hayward, and with their headman and his fellow-worker, the late Mr. Fred. Mayer. About 10 years ago, owing to failing sight, his work over the draughting board was largely curtailed, but he kept on in a consulting way, and did quite a bit of constructing supervision. A notable instance of this was in connection with the Rochester (N. Y.) plant. His services were frequently called in consultation, and his advice was valued in that it was generally followed. The injury to his sight kept progressing, and it finally became so acute that he had virtually to relinquish all active business; this, about 1910. His private life was a peculiarly happy one. In 1885 he was united in marriage to Miss Prosser, a distant connection of his father's family (they were all related directly to the earliest great English steel factor of like name), and this union resulted in the rearing of a family of four sons and one daughter, all of whom survive. Another next of kin is a brother, who is a resident of England. Deceased was a man of deeds, not words, and his lovable ways, often masked under serious mien, brought around and kept close to him a large circle of friends. Another pervading trait in his character was a sense of humor, that had he turned his talents to literary pursuits would undoubtedly have won for him much fame. He was a member of the American Gas Light Association, but did not go on with membership in the American Gas Institute when that body was formed. In conclusion, the writer (who knew him well and intimately for 25 years or more), would and does say that few men in our great industry are entitled to higher credit for placing it on a high plane, for his course was always that of a most estimable gentleman.

Death of Mr. Charles F. Terhune.—Another recent death that will cause a shock to many was that of Mr. Charles F. Terhune, who died the afternoon of the 10th inst., in Roosevelt Hospital, New York. He had been removed to that institution to receive suitable treatment for a malady from which he had been more or less a sufferer for several years. Mr. Terhune was best known to the gas fraternity from his long and honorable connection with the William M. Crane Company, of New York, and perhaps no other man was better known or better liked in the gas appliance division of the industry than was deceased. Mr. Terhune was Vice-President of the William M. Crane Company, and was also Vice-President of the New Bern (N. C.) Gas Company. He was a member of the American Gas Institute, of the National Commercial Gas Association, of the Illuminating Engineering Society, and of the "Gas Meeters," New York Section. His attendance at the meetings of these bodies was marked by frequency, and his personality was of the sort that made friends and kept them. Interment was made the 12th instant.

The Plan of Travel from the West to Pittsburgh, Pa., Seventh Annual Convention, Illuminating Engineering Society.—Secretary J. B. Jackson, Chicago Section, Illuminating Engineering Society, informs us that arrangements have been made with the Lake Shore and Michigan Southern Railway, under which those who propose to

attend the named meeting, resident of Chicago, and west thereof, may safely and comfortably travel to the sessions' point. Special sleepers will be hooked up to the "Pittsburgh Limited," leaving the La Salle street (Chicago) station at 8:20 P.M. of Sunday, the 22d prox. The travelling rates are: Fare, one-way, $9.50; fare, both ways, $18.10; berth rates: Lower, $2.50; upper, $2; drawing room, $9. Stop-overs of 10 days will be allowed on the tickets named at these points on the going and returning trip: South Bend, Ind.; Toledo, Sandusky, Cleveland and Youngstown, O. A stopover at Cleveland will give the voyagers opportunity to visit the engineering department of the National Electric Lamp Association in that city. The Secretary urges immediate attention to this so that plans can be made for making the journey without a hitch. Tickets for this train can be purchased from agents of all connecting lines north, south and west of Chicago; and those outside of Chicago should carefully note that their tickets are thus routed: L. S. & M. S. Ry., Chicago to Cleveland; Lake Erie Ry. to Youngstown; Pitts. & Lake Erie Ry. to Pittsburgh, through service. Secretary Jackson also requests that, in order the Committee may have some fair idea as to the exact number that will make the trip, he be informed at once as to the number of reservations that will be required in the special sleeper.

SPECIAL COURSE IN PRACTICAL GAS SALESMANSHIP.—The National Commercial Gas Association is about to put out its third course in salesmanship, covering the "Utilization of Gas Appliances," Quoting liberally from Secretary Stotz's presentation of this matter, many commercial managers find their men lacking in information on appliances and their utilization, and, under existing conditions, it appeared almost impossible for any one company to compile the information to properly inform its employees. Those in charge are deluged with propositions by their salesmen, in many instances involving considerable thought and study, which, owing to their various other duties, they are unable to give the time and attention necessary to supply the men with the proper data. This course is designed to give a thorough training in practical gas salesmanship. Its aim is to give the gas company representative greater money-making, business building, result-producing ability. It presupposes no previous knowledge of salesmanship (or the gas business) on the part of the student, and is so thorough that it will also prove profitable to the experienced salesman, sales' manager, or any other employee connected with the commercial end of the gas business. It will give the students a thorough, practical knowledge of all the various gas appliances on the market, and take them step-by-step through the various stages, up to the planning, organizing and managing of large advertising and selling campaigns. The new course comprises the best opinions of many men in the business, and is, therefore, not merely a few suggestions gathered here and there. The Board of Educational Control, appointed by the Board of Directors of the Association, is a body of men selected for fitness by experience in the gas industry, and they are particularly qualified to prepare the course. They represent men scattered throughout the country, and include engineers, illuminating specialists, industrial and power experts, new business managers, manufacturers, salesmen, and commercial men. It is brimful of direct, practical, commonsense, business-getting ideas, which can be put into immediate personal application. Every idea, suggestion, plan, system or problem presented has been met, used, and tested for its practicability by some expert salesman, accountant, manager or executive in the gas business. Detailed information as to scope and cost of the course can be had of Mr. Louis Stotz, Secretary, National Commercial Gas Ascociation, 29 West 39th street, N.Y.

CURRENT MENTION.—

"R. S. R.," writing from Statesville, N. C., under date of the 6th inst., reports that, at its regular meeting for August, the Board of Aldermen adopted a resolution revoking the franchise of the Statesville Gas Company. All signs of activity at its plant ceased over 30 days ago, the sequel to a temporary show of life in the back end of June. The resolution sets forth these things. "That a franchise was granted to Sidney Kenney, of Philadelphia, and his assigns, April 4, 1911, with a proviso that gas should be turned on in mains under the surface of the principal streets of the city by April 4, 1912; that the city from time to time extended the provision at the request of the owners of this franchise, the last extension granted by the Board having expired May 15th, last; that Sidney Kenney and his assigns had utterly failed to comply with the conditions of the franchise; that they are now making no effort to comply with it; and, in the opinion of the Board, have no intention of doing, hence it is resolved 'That the franchise heretofore granted Sidney Kenney and his assigns has been forfeited by reason of the failure of said owners to comply with the conditions of the franchise, * * * and that the same is hereby declared to be null and void. And the City Attorney is instructed to bring action in the Supreme Court of Iredell county against the owners of said franchise for the purpose of having the court declare said franchise null and void.'" Our correspondent then goes on to say that Kenney and associates organized gas companies in Concord and other points in the State, and put in plants; but their scheme of organization and incorporation did not meet with the ideas of Statesville people, so virtually no local stock was taken. The Company constructed a building and laid pipe lines in several streets, but no gas has as yet been made on the premises. The night prior to the last period of extension, gas was put into one or two lengths of mains; only to be shown later on that the gas had been shipped to Statesville in tanks, the latter then being connected to the mains. This was all that was done, and the plant is altogether incomplete.

"V. S.," is informed that the new gas rate determined upon by the proprietors of the Empire Gas and Electric Company (the chief offices of which are in Geneva, N. Y.), is thus framed, to take effect in its Auburn district, March 1st: The gas will be billed at 75 cents per 1,000 cubic feet to which will be added the service charge of 50 cents each month. Meanwhile, between September 1, 1913, and March 1, 1914, gas will be billed at the flat rate of $1 per 1,000.

THE authorities of Charleston, S. C., are constructing a plant (to be operated by the Society for the Prevention of Cruelty to Animals) for the destruction of stray animals, or those ordered put to death for physical reasons. It is worthy of note in this connection that nearly all of our large cities are following the plan of asphyxiation for the destruction of all the smaller animals that are inimical to the welfare of the residents.

THE Bachman-Hayden-Whetstone combination are seemingly pleased with the gas developments connected with their interest in Concord, N. C. The main system numbers at present 15 miles, and extensions thereof are being rapidly made to and through the newer districts known as the Brown, the Young-Hartsell and the Franklin. It is also proposed to run a line to Kannapolis. Mr. Bachman believes that 1,000 services will have been hooked-up by December 31st.

WHILE we have not been in receipt of official advices respecting the details of the 1913 annual meeting of the Pacific Coast Gas Association, we nevertheless have sufficient knowledge respecting the preliminaries to here assert that the meeting will be close to a record one. It is to be held in beautiful San Jose, the 16th September; and we have every reason for believing that Secretary Bostwick will have posted us fully in time for printing next Monday.

WE regret to have to chronicle the sudden death (in Honolulu, Hawaii), of Mr. C. R. Guertler, Construction Superintendent of the J. G. White Company, of New York, who has been for some time in charge of the installation of the Marconi Wireless Telegraph Company's new station in Honolulu. His death occurred the afternoon of the 11th inst.

MR. AARON DONOHUE has succeeded Mr. Howard L. Farrington as Commercial Manager of the Old Colony Gas Company's branch in Rockland, Mass.

MR. A. S. NICHOLS, for some time Assistant Treasurer of the Mississippi River Power Company, of Keokuk, Ia., has been appointed Manager of the Fort Madison (Ia.) Electric Company.

A CORRESPONDENT in Cambridge, Mass., forwards the following under date of the 11th inst.: "The Cambridge Gas Light Company has issued its annual bulletin, which has to do with the co-operative profit sharing plan maintained between the Company and its employees. The last twelvemonth the Company divided $8,600 with its employees on said account. Last year the return was 4½ per cent., as against 5 per cent. the previous year, the reduction being traceable to a reduction in the selling rate for gas and to increased cost of manufacture, mainly brought about by the higher cost of coal, of enriching oils and other materials. The cost of erecting a new administration building further lessened the general profit for the year; but the employees are all fully alive to these happenings, and remain highly appreciative of the spirit which actuates their employers in respect of the practice."

"B. V.," writing from Middleboro, Mass., under date of the 12th inst., says that the municipal lighting department of the named place is coming in for considerable criticism owing to its failure to satisfactorily respond to requests for main extensions to and through districts not piped, and in which 200 or more householders are anxious for a gas supply. Reason: "No money available for extensions."

(*Continued from page* 103.)

appliance men present. We are very much interested to learn whether or not it would be of interest to the manufacturer to follow up Mr. Howsmon's thought, and lend employees to follow up campaigns for gas companies. I have had some experience, and find that the manufacturer cannot carry on a successful campaign for the gas company for many reasons, not the least of which is that no manufacturer can afford it. Mr. Howsmon makes it very clear that only a short time of the year is available for a light campaign. He found October not a good month, and he tells what time is a good one. No manufacturer can gather a corps of employees to send to 300 to 500 gas companies at a particular time. It necessitates a corps of 400 to 500 men to go to as many different towns for the campaign. What would be done with these men for the balance of the year? No manufacturer could give them employment. But I do say the manufacturer can very largely assist a gas company in the conduct of a campaign, and should do so to the best of its ability. Many manufacturers are doing so, spending thousands of dollars in fixture, light, hot water, etc., campaigns. This practice is, however, rapidly spreading, and the up-to-date gas companies are so well pleased with these that, having once tried the plan, it is done by them year-after-year. The larger companies are in much better position to do this than are the smaller ones, but every gas company, no matter how small, has new business to get. The gas company and its consumers may be likened to a human body, of which the new business department is the heart, pumping the blood to the spine and nerve centers, representing the consumers. The blood pumped is pure and returns to the lungs (the office and complaint department) in an impure state, if I may use the simile, because the complaints come back that way. They are rectified through the office department, as the blood is clarified through the action of the lungs and again pumped out by the heart, or the new business department. Mr. Howsmon says, "The gas company's operation and risk assumed in the transaction, are to collect the balances due in installments, furnish room for the handling of the campaign, and to take care of and be responsible for the actual working stock of the enterprise." That would relegate the new business department to the background, and the only work for the gas company would be the collecting. I don't think any man here would want that, and if manufacturers were to furnish men to carry on campaigns those owning gas companies would say, "We don't need any new business department. We will do without it. The manufacturer does it for us." I would like to ask Mr. Howsmon if the campaign conducted by the agency in New Orleans was as successful as the light campaign which he carried on himself? I never knew a manufacturer's campaign to be a success, but hundreds of campaigns by new business departments have been howling ones.

Mr. Howsmon—Mr. Ralston fails to get the idea. If his interpretation is accepted by you all, you don't get the point I tried to make. The suggestion of making the manufacturer the selling agent is open to discussion, but it is not my idea to make this point. Mr. Ralston misconstrues my reference to time. Instead of recommending a reflex lamp campaign for December, I was merely recommending care in all instances; consideration before jumping. The financial end is more or less a question of fooling ourselves. In a campaign conducted by the gas company, you organize a department which shows a profit up to a point the same as reached in the paragraph by Mr. Ralston; but, there is the tag end of the campaign which will run from 6 weeks to 3 months; handling complaints, continuing maintenance, and taking care of calls that must still be carried directly in the department. When the expense is footed up at the close of the session, many companies don't show much profit. A selling agency can make money on campaign selling, but the gas company makes money because of the excess charge placed on its books during the continuation of the campaign. At the end of the campaign, the selling agency goes with its profit; but the gas company has not maintained or started any separate department. It is still running along in its business, and can take care of these complaints, charging it to the every day expense, and you can foot up your columns with the profit showing. The expenditure is actually the same; but, talking on distinct campaign selling, and if the department formed for the purpose is carried to the end, that eats into the previous profit, and, at the finish, will not show a profit. Such has been our experience. I hoped I was getting campaign selling clearly before you, and aimed to make that the real subject matter. It cannot replace the activities of a new business department.

The President—As to special campaigns, it may interest you to hear about a little stunt we pulled off. We sold last year about 100 water heaters at $22 each, connected. We cut the price to $16, and in 6 weeks sold 126. We specialized on heaters, not neglecting ordinary business, and we did all this with our new business department. I believe the new business department should do this work co-operating with the manufacturer.

Mr. W. M. Crane—We are manufacturers of gas appliances, and one feature of our line has been campaigns. I think it requires special talent, almost amounting to genius, to conduct a campaign successfully. One has to understand every detail down to keeping books, and such a man is rare. The manufacturers have their hands full with making and selling in the regular way, and I don't believe that a gas company can conduct a campaign as successfully as can an outside individual, gifted in that direction. In the first place, they wouldn't want to organize a force large enough to run a campaign as it ought to be run in a good-sized town. Wanting to keep a force busy, they could not do so; but they could take a smaller force, and specialize every season of the year, taking different articles for sale, either fuel or industrial appliances. A great many of these can be sold that it would not pay the manufacturer to sell, because his profit on the few sales, while it might be a good, fair profit, wouldn't pay to put a man there. With the gas company, one appliance might in 3 or 4 weeks use more gas than the cost of the range. Take an industrial appliance that is run for 10 (or even 8) hours a day, burning from 100 to 300 feet of gas per hour. You can see what that amounts to. There is very little profit therein for the manufacturer, but an enormous ultimate one for the gas company. Where a man who has talent for campaigns, and can organize a force entirely outside of the company, the latter is relieved from taking care of the complaints arising from injudicious selling, and doesn't reflect on the gas company. In fact, if it is done wisely, no complaints will come back. In an individual canvass, if the thing is not just satisfactory, no complaint is made, even if they never use the article, so the gas company is relieved of embarrassment of that kind by having an outside agency in charge.

Mr. Sligo—If a foreign selling agent, not backed by the gas company, sells an unsatisfactory appliance, or if it is objected to after a trial, and if then the gas company disclaims selling it when the consumer makes a complaint, wouldn't it be a reflection on the gas company? We always desire to hear complaints so that they may be adjusted, and the consumer satisfied, and that could not be done if the gas company disclaimed selling the appliance.

Mr. Ralston—Mr. Sligo speaks about the possibility of sharks coming in and selling material for which the gas company can't be responsible. Of course, that is altogether up to the new business man. He knows the proper things his consumers should use, whether a gas range, water heater or light. It is for the new business man to decide whether he will allow the selling agency to sell goods backed by the gas company. We come into competition with some very good appliances, some fair ones, and others that are not fair. If the new business man decides that the fellow who gives the best estimate gets the job, it is a critical point for the gas company. It isn't easy for me, as a manufacturer, to say, "I will do more than the other fellow." The competition is unhealthy. Mr. Kellum (our Chicago representative) having gathered about 50 new business men, went over the question of campaigns with them; and those men conducted their own campaigns in smaller cities very satisfactorily to themselves. There was not one who didn't make money. Their letters to us have been published, and I shall be glad to send a copy thereof to any gas man interested. I say, no manufacturer can go into a town to conduct a campaign and do it as cheaply as the gas company can. Some men are particularly qualified as salesmen, but every new business man has in him the elements necessary to conduct a campaign of that character without any outside help. I do not know any new business man that hasn't as much ability as any other man a manufacturer could send him to conduct a campaign. Mr. J. P. Hanlan, of the Public Service Corporation, of New Jersey, has gone into it year-after-year, has made money out of the practice and tells how he did it. There are many young men-students in every town who are glad to work for the gas company temporarily. And those chaps make very good campaign men. In any event, if you supervise them they can't do any harm. At the recent meeting of the Pennsylvania Gas Association, one speaker spoke about the small company having enough men of its own. In the North it is now fixed policy to have a salesman for every 2,000 meters. A town having 5,000 meters means 3 salesmen, because they expect to get another thousand meters, and those men should be able to pick up amongst themselves enough help

to make a rush through a city, on a light campaign or hot water campaign, provided the men are properly instructed.

Mr. Crane—Speaking of consumers' complaints, I referred chiefly to having a supervisor follow the salesman. Many canvassers often take fake orders, and turn them in as sales. When the article is delivered, the supposed purchaser declares, "I never ordered it at all." In the instance he notes, the supervisor says, no complaints came back to the gas company on that score, so that eliminates the complaint and helps the gas company, for only those whom the supervisor has finally turned in as a sale and made satisfactory to the consumer, are counted as orders. I favor heartily the special campaign by an outsider, nor do I think an instructor is necessary. Few gas companies want him the year round; but if they had a man to give them the best features, they would certainly accomplish much more.

Mr. Howsmon—Do not misunderstand me. I am not trying to tell how to eliminate campaign selling as it has been conducted. My whole idea was to get before you the possibility to the man limited in resources, not in brain power, and having local conditions to contend with. I do not criticize other campaigns. Our own was successful, but it is not a substitution.

The President—We will now have the pleasure of listening to the paper by Mr. R. C. Congdon (Atlanta, Ga.), on

THE NEW COAL GAS PLANT AT ATLANTA, GA.,

and in connection therewith I want to mention that the American Gas Institute asked him to save it for their meeting. But he very kindly, although perhaps not so kindly to them, said he had prepared the paper for the Southern Gas Association.

[For the text of the Congdon paper, see JOURNAL, *ante*, June 9th; page 366.]

Discussion.

Mr. Ferrier—The amount of current for the coal crusher was greater in December although in March more coal was handled. I would like to know the cause?

Mr. Congdon—The current consumed by the crusher depends upon the character of coal, of which we have two grades; one is crushed, washed nut and pea; the other is run of mine. The coke conveyor shows a reduced current consumption for March as compared with other months, due to a change in the design of the coke conveyor. As originally designed the bends in the conveyor chain were not made over wheels, but over curved angle irons, and the friction was very great.

Mr. Firstbrook—Last year I had the privilege of visiting the Beckton plant (London) and there saw the Fiddes-Aldridge machine at work. They were getting excellent results, and I believe Mr. Congdon has taken the right step.

The President—The bench fuel is pretty low, yet Mr. Congdon expects to do better in his new installation, and also reduce his retort house labor. The principal thing to me in this paper, is that you are eliminating a lot of future labor troubles, and anything we can do along this line is worthy of encouragement. I thank Mr. Congdon for his paper, because we can use it in our business.

Mr. Dexter—Is not the bench fuel 23.6 of coke made?

Mr. Congdon—Yes.

The President—Is not this 307 pounds to the ton less than under the old system?

Mr. Congdon—It is approximately that which we had been running with the old, stopend retorts.

Mr. DeFrese—This 2.58 cents for retort house labor is very low. But we must add the interest on the investment, and maintenance and depreciation charges, also the cost of the electric current.

Mr. Congdon—I figured that these improvements will be entirely paid for by labor savings in a few years, taking into account interest, depreciation, etc.

Mr. DeFrese—This is a profitable plan to you, but the men who have no machines in their retort houses would be interested to know the actual cost of retort house labor and expense. It is costing us between 6 and 7 cents per 1,000, and, wherefore, this 2.58 cents looks ridiculously low; but you have a material increase in retort house expense, also by the depreciation and interest charge on your investment; which must also be taken into consideration in changing from hand charging to machine charging and drawing. We operate on 26.5 to 27.0 bench fuel, without CO_2 return. We use steam in lieu of CO_2, and find results just as good, thus eliminating the blower and a very considerable length of pipe line.

Mr. Congdon—It is necessary, as Mr. DeFrese says, to take into account interest and depreciation on new plant, and credit for the interest and depreciation on the coal handling apparatus used with the old method.

Mr. DeFrese—When does it become profitable for a gas company to install such a machine? Mr. Congdon has a very large plant, and the man who operates a small plant wants to know when to install machinery.

Mr. Congdon—The additional apparatus used with this new plant, is as follows:

Charging and drawing machine	$15,000
A coal crane for reclaiming coal from storage	5,000
Coal conveyor, crusher and reciprocating feeder and coal hopper	6,000
Coke conveyor	8,000
Overhead coal bin	2,000
Total	$36,000

That is more than I paid for it, but I got a very good bargain. The depreciation figures as follows:

Depreciation on the coke conveyor, 5 years' life	$1,600
On balance of the apparatus of 10 per cent., which I think is high	2,800
Interest on the investment at 6 per cent	2,160
Electric current to operate all the apparatus	1,740
Total, interest and depreciation charge, with current for 1 year	$8,300

This plant will make 700,000,000 cubic feet of gas, and the interest and depreciation charge per 1,000 cubic feet of gas made is 1.2 cents, which added to the 2.58 cents labor, makes the comparative figure with retort house labor, 3.78 cents. In this figure of 3.78 cents no credit has been taken for interest and depreciation on coke hoppers, coke and coal elevators, coal wagons, tools and so forth, used with the old plant.

Mr. Perry—Has there been any trouble with the amount of yield?

Mr. Congdon—We are not satisfied with the yield, and think we will get considerably more. Our coal has not been particularly good, showing 8.6 per cent. ash. We use the Black Diamond run-of-mine, and a washed nut-and-pea coal, all from Tennessee.

Mr. Perry—Mr. Congdon has a water gas plant in connection with his coal plant. May that account partly for his not having any trouble from naphthaline?

Mr. Congdon—I told the Superintendent of a Massachusetts Company that we had no naphthaline troubles. He called in his chemist to see a curiosity, and to find out how I did what other people could not. Before we adopted our present plan we had a great deal of trouble with naphthaline, our complaints runni ng as high as 200 a day, and we had our water gas plant running too. I made some simple experiments, and found that the naphthaline was taken out, if we sent our finished gas through gas oil. So I put a scrubber on the inlet of holder. Both coal and water gas pass through this scrubber and the mixture is washed with gas oil. I put this system into operatian about 6 years ago, and we have not had 50 naphthaline complaints since. If we are losing illuminants, we are losing very little. Four years ago Dayton was having all kinds of nap hthaline trouble, and I suggested to the Superintendent that he put gas oil in the first three compartments of his Mitchell scrubber. Three years afterwards he told me that naphthaline was causing him very little trouble.

On motion of Mr. Dexter a hearty vote of thanks was passed to Mr. Congdon for his paper.

THE QUESTION-BOX.

The President said they had another hard worker in Atlanta, named Whittaker. He had put much time on the Question Box. Continuing, the President said: We have so standardized the gas business, wherefore it may not be necessary to have any more wrinkles or to ask any more questions; but I for one don't believe it, and I am going to ask the continuation of the Question-Box and the Wrinkles also. If we do continue these, then in justice and fairness to Mr. Whittaker, he should receive greater co-operation.

Mr. Brown—While I am guilty of not sending in any wrinkles, I did send in some questions, and I answered the question paper sent to me. I realize its importance, and feel grateful for the questions sent out. I was looking for information about a week ago, and had occasion to look up the famous Ohio Question-Box for 1904, when Mr. Henry L. Doherty was its Editor. There I found an answer to

he very question, which shows how important these things may prove to us. I would not like to see the Question-Box discontinued.

An adjournment to the following morning was then ordered.

SECOND DAY—MORNING SESSION.

The President—The first thing on this morning's programme is the paper by Mr. McD. Dexter on

PRACTICAL VENTILATION.

[For text of the Dexter paper, see, JOURNAL, *ante*, May 19th, p. 323.]

Discussion.

The President—You didn't see anything in Mr. Dexter's paper about refrigerators, but we want to see his house. This paper goes into things which the ordinary paper on ventilation does not cover. I hope we shall have a full discussion of this most important matter.

Mr. Conroy—There are many things in the paper which we have learned in experimenting in gas lighting. I recall an installation in a Toronto, Canada, pool room, located in a basement, consisting of 70 gas arcs, where they built a tube from the ventilator of each lamp, running along the ceiling and from these to the roof. A great many people play pool there and nearly all of them smoke, but the air is fresh and clear and little smoke noticeable.

Mr. Ralston—Some years ago I had sickness in my house during the summer. Being in great distress to get an electric fan in the sick room, I went to the electric company, and they asked if there was an electric light pole near the house If there is, a fan would be in there in a short time. That noon the fan was installed, and a light on a small portable beside the bed. A few months ago a similar condition existed in a friend's house, and I was about to go to the electric company, but I remembered that there was a gas fan. I got one of these and did the trick with gas. I am glad that we are not asleep in providing the things which have heretofore been considered possible only by the electric people. I cannot say the gas fan is perfect, but it will be shortly. Mr. Dexter says fans are not a proper means of ventilation, and I agree with him. There is nothing more unpleasant than a store where gas is burning and an electric fan is throwing down the products of combustion into your face. Dwelling houses to-day are not properly ventilated, and red-blooded men know that there isn't anything better for health than good ventilation; and we, as men interested in the subject, should give it a great deal of attention.

Mr. Ferrier—I am pleased to listen to a paper which evidences so much study and care by one who was my collaborator 12 years ago in preparing a similar paper. And I am more than pleased to find that he is trying in his own house to give a practical demonstration of the theories. In that paper I used the expression that before the present century is out, the livingroom and bedroom of to-day will be regarded with pitying wonder. Conditions are fast approaching that state of public opinion. I have always deprecated the stand taken on this subject by the gas industry in general. They take a defensive attitude, and say, "Well, carbonic acid doesn't do any harm, or very little." That is not the way to go at the question. We sell a man a foot of gas for lighting equal to 600 heat units. He uses 6 of them for light, and 594 are thrown away or put to no useful purpose. Should not that energy be made use of in some way? For 12 years I have been drumming at that, and referred to it in the report on ventilation before this Association last year. It is a business proposition to see that all the energy we sell is usefully applied. Years ago experiments were made in a public library in Birmingham, England, using open gas burners, incandescent electric lamps, and gas burners with ventilating tubes. They found that the atmosphere of the room with gas burners and ventilating tubes was the best hygienically.

Mr. Frund—When there is an excess of water in the air, we sniff and say, "Whew, it's close in here!" In summer, we call it sultry, and we suffer greatly if the thermometer gets much above 80, with a low barometer. But if the air is dry we don't fret as much with the thermometer at 90, or even 95. This difference of our personal comfort is all a matter of humidity. Here is an easy experiment, with a mighty good lesson. Take two thermometers on a dry, hot day. They read the same. Wrap a cloth around the bulb of one, and let an end dip into a cup of water. The water will be drawn up into the cloth around the bulb, and since the air is dry, the water in the cloth will evaporate rapidly. Evaporation cools the thermometer, and it may lower its readings from 10° to 20°, depending upon the dryness of the air. On a damp day, there is no difference between the dry and wet thermometer. The human body evaporates from 1 to 2 pints of water every day. In other words, we are a kind of wet bulb thermometer. The dryer the air, the more water we evaporate and the cooler we get. The wetter the air, the less we evaporate, and it is easier to keep warm under ordinary temperatures. If you keep the air in your living room s more moist, you would not need to keep the thermometer around 80° to keep warm. You could do very nicely on 10° less, and the evaporation from your skin would not be so rapid. Cold air may be wet, but as soon as it is warmed its capacity for moisture increases, and what was wet air soon becomes practically dry air. Mr. Dexter mentions placing lights near the ceiling to create a flow of air through a shaft from a basement. Why not add moisture to the air in the shaft and thereby more rapidly ventilate the room. I know of residences heated with hot air, in which the ventilating and heating are very satisfactory, the heated air passing around galvanized buckets filled with water, suspended under the registers. I understand that, in Europe, in many buildings, a hole is left in the wall of a room, near the ceiling, which leads to a duct, conveying the air to the roof of the building. A small gas flame is kept burning in the openings to assure ventilation and circulation of air.

Mr. DeFrese—I believe the most difficult thing to ventilate is a coal mine. In the small mines, where power fans are not available, the mine is ventilated by the furnace. We operate a coal mine in connection with our gas plant, and our mine is equipped with such means of ventilation. The main entry provides openings for our intake air, and our furnace stack provides means for discharging the foul air. This is a matter that should be kept before the architects, for I believe it is only through them we can expect to succeed. An instance for the necessity of perfect ventilation is afforded by one of our very large stores in Chattanooga. This store was formerly lighted with gas, but, due to the very poor ventilation, gas made it oppressively hot. The owner did not care to make change in store, consequently we lost the business. Had the ventilation been taken care of when the building was erected, we would have had a chance to hold this business?

Mr. Nettles—Tampa has been greatly built up in the last 5 or 10 years. Most of the stores have ceilings 12 to 14 feet high, and in the summer they take out their transom windows over the show window, which helps to keeping the store cool. We have about 1,000 arc lamps in use, and have about 40 per cent. of the lighting in Tampa.

Mr. Dexter—Mr. Frund speaks of added moisture with his hot air furnace. The main objection to a hot air heating system is that the quantity of moisture carried in air varies with the temperature, and that, in the winter time, even though the outside air be saturated with moisture, if it is raised to 70°, that same air will be dry as desert air. So that in a hot air heating system it adds to comfort to have the air moist in the winter; but in the summer, I doubt the advisability of adding moisture. I have heard of the placing of a pan of water in front of an electric fan to get a lower temperature by evaporation; but I claim the temporary benefit is more than offset by the added humidity. Humidity restricts evaporation and perspiration; so in the summer time we want dry, moving air, so it won't become humid from the emanations of the skin, exhalations, and so on. In some of the government buildings they use a shaft from the basement to the roof as an aspirating flue. The iron stack from the furnace is in its center, the radiant heat from which creates a draft up the opening.

Mr. Collins—We would like you to see the two-section gas engines out at the gas plant. We have a producer engine as an emergency proposition, direct connected with the 800-horse power generator. Those who wish to go should meet in front of the hotel about 5 P.M., from there taking cars direct to the plant.

Mr. Frund—It will be well worth while for the members to make this visit to the plant. It is the best in the South to-day.

On motion, a vote of thanks was tendered to Mr. Dexter for his excellent paper.

The Committee on Time and Place of Next Meeting, reported progress.

(To be Continued.)

THE authorities of McHenry have assented to the petition of the Western United Gas and Electric Light Company for the right to distribute gas in the named place. The grant specifies that the rate shall be 95 cents per 1,000 cubic feet, less 5 per cent. for prompt payment.

Hydrocarbon Motor Fuels.

Mr. W. J. A. Butterfield, at a conference held in connection with an exhibition of industrial motor vehicles in London, England, read a paper on this subject, which is abstracted in the *Journal of Gas Lighting*. He pointed out that the range of temperatures of volatilization or distillation of the several components of hydrocarbons was perhaps the most important factor in judging the fitness of a mixture of them for use as motor fuel; and this range did not depend on the series to which the hydrocarbons belonged. A commercial benzol might fractionate on distillation exactly as a standard grade of petrol. Hence all potential sources of supply of hydrocarbons of the requisite degree of volatility must be considered in this connection, irrespective of the series or class to which they belong.

Having considered, in succession, petrol or motor spirit from petroleum, hydrocarbon motor spirit other than petrol, and shale oil motor spirit, Mr. Butterfield made the following remarks:

The British Dominions have more of the world's deposits of bituminous coal than correspond with their area, and schemes for the production of motor spirit from coal are of special interest. The carbonization of bituminous coal, as carried out in coke ovens and gas works at present, yields gas and tar from which, by appropriate methods, from 1½ to 3 gallons of motor spirit, consisting chiefly of benzol, may be extracted per ton of coal carbonized. This yield would by itself be inadequate to pay the cost of handling and carbonization of the coal; but the return from recovered benzol should be an important factor in the works' balance sheet. At present, the gas produced on gas works is not treated for the extraction of motor spirit; and if it were so treated its calorific value would be reduced by 6 or 7 per cent. The gas so impoverished would have to be sold to the consumer at a correspondingly lower price; so that the proceeds from the recovery and sale of benzol would have to bring in a net return in excess of (say) 7 per cent. of the cost price of the gas made.

The amount of motor spirit recoverable from coal gas depends partly on the quality of the coal carbonized, and partly on the temperature and mode of carbonization; but where both of these are favorable to a yield of as much as 2½ to 3 gallons of motor spirit per ton of coal carbonized, there appears to be sufficient margin of profit to the larger gas undertakings to warrant the recovery of motor spirit from town gas. In most cases, some fresh legislative authority would have to be obtained before the change in quality of the gas could be made, but there is very little obstacle, beyond the necessary capital expenditure to the general extraction of motor spirit from coke oven gas.

The words "motor spirit" have been used in preference to "benzol" in connection with coal gas, because it is unnecessary that the motor spirit recovered should have the composition and characteristics of commercial benzol, and a restriction to these grades would appreciably reduce the yield of motor spirit per ton of coal. Generally speaking, however, motor spirit recovered from coke oven gas and town gas would closely resemble commercial 50 per cent. benzol.

The tar produced in the carbonization of coal contains a relatively very small proportion of highly volatile constituents which could be utilized as motor spirit. That recoverable from gas works and coke oven tar (as distinct from the motor spirit which may be extracted from the gas) will not amount to more than 0.1 to 0.2 gallon per ton of coal carbonized. The remaining constituents—*i. e.*, tar oils, pitch, etc.—of ordinary coal tar, being themselves high temperature products, do not yield by "cracking" any appreciable quantity of highly volatile oils which would serve as motor spirit.

Schemes have been propounded for carbonizing coal in a manner to give a tar containing a higher quantity of constituents of the nature of motor spirit. These depend on a lower temperature of carbonization than is used in the gas and coke industries, and differ one from the other chiefly in the provisions made for removing the tar and oil from the carbonizing vessel before they have had any prolonged contact with surfaces at a high temperature. Thus cracking of the oil and tar vapor is avoided, for the reason that, while in suitable conditions it should increase the yield of motor spirit, the carbonizing vessel is unsuitable for such cracking.

The tar or oil obtainable by low temperature carbonization averages about 15 to 20 gallons per ton of coal; and from this ¾ to 1¼ gallons of motor spirit can be obtained by distillation. If the gas produced at a low temperature be stripped of its light hydrocarbon constituents, a further yield of 1½ to 2½ gallons of motor spirit may be expected, making a total yield of 2¼ to 3¾ gallons per ton of coal. But a large proportion of the heavier constituents of the oil or tar obtained by low temperature carbonization can be cracked by the methods used for cracking shale oils; and by these means a yield, direct or indirect, of 5½ to 7 gallons of motor spirit may be obtained from a ton of bituminous coal. Certain cannels will give a very much higher yield.

The commercial success of schemes for the low temperature carbonization of coal depends, however, only to a limited extent on the possible returns from motor spirit. The semi-coke or smokeless fuel produced must have a market value per ton at the point of production not less than 75 per cent. of the market value of a ton of good quality large coal, while the plant for the low temperature carbonization must admit of the coal and semi-coke being handled throughout by mechanical means; and the process and the coal carbonized must be such that a yield of not less than 25 pounds of sulphate of ammonia per ton of coal is obtainable.

As regards the quantities of motor spirit required, and the possible yields from certain sources, it has been estimated that about 100 million gallons of spirit are now being consumed in the United Kingdom in a year; and this quantity will increase rapidly for some time to come. The motor spirit recoverable from coal tar is trifling in quantity; and a large proportion of it is required as benzol in chemical industries. The extraction of benzol or motor spirit from all the coke oven gas in the United Kingdom should give, on the basis of about 2 gallons per ton of coal coked, about 30 million gallons of spirit per annum. The stripping of coal gas in the larger gas works alone should give a yield of about 30 million gallons. The oil shale at present quarried should be capable of yielding about 30 million gallons. The production of this motor spirit from the shale would mean the diversion of the latter from its present purposes; but there seems no reason why, if the cracking processes prove economical when worked on a large scale, greatly increased quantities of oil shale should not be worked.

These figures for the United Kingdom might serve to assist in a study of the prospects of developing sources of motor spirit from natural resources in other parts of the Empire. Broadly speaking, coal can be regarded as a raw material for the production of motor spirit only to the extent to which local markets can be found for gas and gas coke, for metallugical coke, or for semi-coke or smokeless fuel. For the further quantities required of motor spirit of a hydrocarbon nature, petroleum and oil shale must be depended upon. Where little demand exists for lamp oil, heavy fuel oil, lubricating oil, etc., the greater part of the crude petroleum or shale may be converted into motor spirit by recourse to appropriate methods of cracking.

New Methods and Appliances.

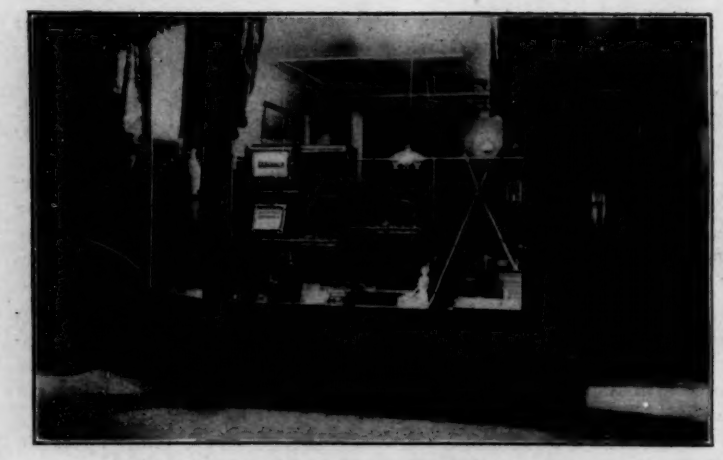
REFLECTORS FOR "REFLEX-20" LAMPS.—The latest for the National Commercial Gas Association's Gas Appliance Handbook (sheet No. 103) has these appliances descriptions, all clevely illustrated: Nos. 224 and 232 reflectors are ribbed, with scalloped bottom and Welsbach metal collar. The No. 224 is in alabaster or opal, with a diameter of 9 inches and a depth of 5½ inches. No. 232 is in alabaster, for the No. 22, ornamental, "Reflex-20," with a diameter of 12 inches and a depth of 7½ inches.

No. 7,150 has to do with the Welsbach holophane reflector (extensive type), is fitted with metal collar, and has the dimension of 9 inches diameter and 5½ inches depth.

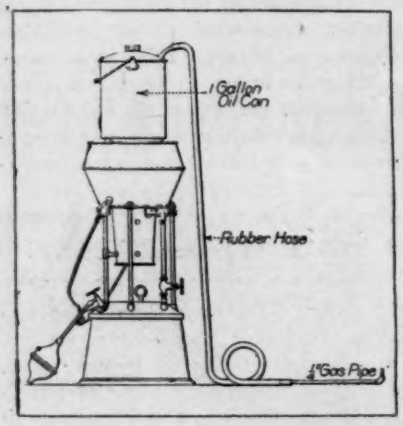
No. 222, of opal glass, or 226, of enameled steel reflectors, are shown in plain finish, carrying metal collar. The dimension is 9 inches in diameter and depth of 5½ inches,

---

A UNIQUE WINDOW DISPLAY.—A rather unique window display, and one that was widely commented upon, is illustrated herewith. It was the window of the Athol Gas and Electric Company, Athol, Mass., and affords a practical demonstration of the progress that has been made in water heating from the time of the aborigines until the present day. The photograph is especially interesting, in that it was taken at night with no light further than the brillant illumination within the display room; yet it is a remarhably clear photograph. The tripod of three birches holds an old fashioned, iron pot, while underneath (seemingly burning) lie grouped together a number of carefully charred birch sticks. Here and there brightly glimmers a red electric light between the sticks, so the general effect is quite realistic. By the side of the fire is a well-executed lithograph of an



Indian heating water by first heating stones under a fire in the open and then throwing them into the vessel of water. A jump is now made, past confined fire in a stove, to the heating of water with gas. Large boiler, with several thermometers tapped in at different levels, stands at the left. It is a regular demonstration boiler, loaned by the Pittsburgh water heater people for this purpose. A gas water heater is attached in the regular way. It was planned to start with cold water three times each day, which hours were stated upon display cards so that, as a rule, there was quite a group waiting each time to see the gas in the heater turned on full force, meanwhile watching the clock that stood nearby as the mercury in one thermometer after another kept rising. It was a never-failing source of amusement to those inside to note how long many well-dressed women would wait until the mercury reached its highest point in the last thermometer. The interest continued unabated until the display had been in the window nearly a month. No better proof could be offered for the right to call this not only a unique window display, but a successful one, and one to which already many sales have been traced.



THAWING OUTFIT.—A simple device for cleaning a frozen riser or service, can be made with a plumber's furnace as shown in the accompaning illustration. The steam generator is a 1 gallon oil can with a cork in the top to act as a safety valve. A piece of rubber tubing slipped over spout, with ¼-inch pipe as a hose nozzle, completes the apparatus. The can should be about two-thirds full of water.

Recent Patent Issues.

Prepared for the AMERICAN GAS LIGHT JOURNAL by ROYAL E. BURNHAM, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 20 cents.

1,068,452. Vertical Retort Gas Apparatus. A. J. Robus, St. Louis, Mo., assignor to Evens & Howard Fire Brick Co., same place.

1,068,677. Gasometer. K. Lohle, Zurich, Switzerland.

1,068,708. Apparatus for the Production of Gaseous Fuel. A. W. Southey, Mill Hill, London, England.

1,068,788. Gas Producer for Generating Rich Gases. R. Lahaussois, Paris, France.

1,068,820. Vertical Retort Gas Apparatus. A. J. Robus, St. Louis, Mo., assignor to Evens & Howard Fire Brick Co., same place.

1,068,904. Means for Preventing the Backward Propagation of Flame along a Conduit Conveying Combustible Gaseous Mixtures. A. C. Ionides, Jr., London, England.

1,069,047. Gas Lighter. F. Wagner, Cassel, Germany.

1,069,084. Gas Regulating Means. E. J. Goldblatt, Chicago, Ills.

1,069,262. Mantle Shaping Machine for Upright Mantles. O. Kaufman, Youngstown, O.

1,069,263. Mantle Shaping Machine for Inverted Mantles. O. Kaufman, Youngstown, O.

1,069,393. Gas Meter Connection. M. A. Corbett, Columbus, O.

Items of Interest
FROM VARIOUS LOCALITIES.

"C. R. Y.," writing from Marion, Ind., under date of the 8th inst., says that Mr. J. M. Fishell has resigned his position with the local division of the Central Indiana Gas Company. As a member of its commercial division he is well and favorably known in Marion. Mr. Fishell proposes to take a complete technical course with a view to fitting himself for connection with the operating field of the industry.

"E. F.," writing from Weymouth, Mass., under date of the 8th inst., says: "It may be of interest to you to know that Mr. Lawton, for the past 2 years Commercial Manager in Weymouth for the Old Colony Gas Company, reporting to Mr. J. D. Shattuck, Consulting Engineer and Contractor to the same corporation, has resigned, the resignation to become effective the first prox. 'Genial Harry' has certainly been a hustler during his time in Weymouth. In the last 2 years he landed orders for over 3,600 meters, with an accompaniment of ranges, lamps, etc.; and we are sorry that he is leaving us. Mr. Richard Champion, who has for some time been Assistant to Superintendent Smith in Weymouth, has resigned to enable him to take up the tasks connected with the position of Manager at Norwood, Mass. Another change occurs in the staff, by which Mr. Roy Farrington leaves the selling corps to affiliate himself with the Amesbury Electric Company."

"B. V. S.," writing from Rochester, N. Y., under date of the 11th inst., says that the proprietors of the Central New York Gas and Electric Company have been busy arranging for the details of the betterments necessary for the better service of some of the districts which it supplies. Perhaps the bulk of these will go to the Newark (N. Y.) section, General Manager Coleman having figured it out that main replacements and extensions will require $12,000; and that the balance, which will cost another $25,000, includes a water gas set and a storage holder up to retaining 100,000 cubic feet.

MR. F. J. REYNOLDS, of Quincy, Ills., has been retained as Commercial Manager, by the Peoples Gas Company, of Pana, Ills.

A RECENT issue of the Mobile (Ala.) *Home*, contained an article on the doings of the Mobile Gas and Electric Company. We do not know how the gas men managed to do it, but we do know that the article, as to its first 3 lines, stated that, "The Mobile Gas Company can justly be termed a public servant. A visit to the gas plant is well worth a person's time!"

GENERAL MANAGER OWENS seems to have matters well in hand in his stronghold at La Crosse, Wis. In fact, the showing there is of the sterling sort. This year's commercial work was not rightly started until the middle of April; but, despite that late beginning (largely owing to the mass of detail in connection with the construction of a new, up-to-date plant, that will not be completed until late in September), so far the Company sold 200 cabinet ranges, as against only 50 for the whole of the previous season. And this year 200 specimens of the single-oven type were disposed of. The output of automatic water heaters in the last 3 months numbered as many as had been put out in 3 prior years. Contracts have been let for three 400-horse power boilers in the Company's Edison station, the same to be equipped with chain grate stokers. Besides all this, extensive changes are being made in the distribution system, this applying to all grades of the Company's business—gas, electric and hot water.

HERE is a batch of personals in connection with the La Crosse Company, some of which have heretofore been noted in the JOURNAL: Mr. A. W. Higgins has been appointed Engineer and General Superintendent of the La Crosse Gas and Electric Company. Mr. Higgins has been doing engineering work since graduating from the Massachusetts Institute of Technology (Class of 1901) in various capacities. He has been associated with Messrs. E. H. Abadie Company, of St.

Louis, Mo., Engineers and Contractors. More recently he was in charge of the installation of the power plant for the Big Muddy Coal and Iron Company, of Herrin, Ills. Mr. Higgins succeeds Mr. S. W. Cheney, who goes to the home office of Kelsey, Brewer & Co., at Grand Rapids, Mich., the operators of the La Crosse Company.

MR. FRANK H. EVANS, who has been appointed Commercial Agent of the La Crosse Company, was connected with the Public Service Gas and Electric Company, of Plainfield (N. J.) in various capacities for the past 6 years, being its new business manager at the time of his resignation. The La Crosse Company has heretofore only handled gas appliances in a desultory sort of way, but it will now establish fully equipped display rooms, of modern fashion.

MR. S. W. CHENEY has been appointed Assistant Engineer to the Kelsey-Brewer Company, with headquarters at Grand Rapids, Mich. He leaves the position of Engineer and General Superintendent to the La Crosse Company. He has been identified with the public utility organizations since his graduation from the University of Wisconsin (Class of 1904), since that time having filled responsible positions at Denver, Col.; Lincoln, Neb.; Montgomery, Ala.; and with the Railroad Commission of Wisconsin.

MR. D. C. PLANK, since 1909 in the responsible position of Chief Clerk with the Geist forces in the Wilmington (Del.) Company, has resigned from that service to assume the position of General Manager of the Missoula (Mont.) Gas Company. Just prior to his leaving, his former associates presented him with a handsome travelling bag.

MR. IRVING VAN SANT succeeds Mr. Plank as Chief Clerk in the Wilmington corporation.

ACCORDING to the Newark (N. J.) *News*, the New Jersey State Board of Public Utilities has issued a recommendation that the Elizabethtown Gas Company reduce its base rate from $1.25 to $1 per 1,000 cubic feet. The practice in the named place is to allow a discount for prompt payment, bringing the net to 90 cents per 1,000; and that discount is not applicable unless the monthly use was at least 1,000. The Board is engaged in making a physical valuation of the plant of the New Jersey Gas Company, which corporation operates in Vineland, Glassboro, Swedesboro, Wenona and other South Jersey towns, with a view of fixing the rates to be charged. Under its franchise the Company charges $1 per 1,000 in Vineland, in other places the rate is $1.38, and in still others as high as $1.50. A large part of the territory served is very sparsely settled. All hearings before the Commission have been suspended till September 2, but in the meantime the Commission proposes to catch-up with the accumulated work.

"B. V.," writing from Springfield, Mass., under date of the 11th inst., says that the annual reports respecting the operations of the municipal lighting department of Westfield, Mass., for the twelve-month show increasing efficiency. During the year ended July 31, gas ranges to the number of 125 were placed, as against 66 for the previous year. The department is busily engaged on main extension work, notably through King and Cortez streets.

THE residents of Douglaston, Long Island, are again trying to convince Manager Spear that the mains of the New York and Queens Gas Company should be extended to and through the named settlement. Mr. Spear is now making a thorough canvass of the district, and it may be taken for granted that that thoroughgoing gentleman will see to it that the Douglaston folks will have gas if it can be shown that any considerable number of the residents will sign-up as users.

THE new gas works at Paxton, Ills., has been satisfactorily put in operation. The Superintendent is Mr. T. E. Larson.

MR. MICHAEL ASH, at one time President of the Gas Meter Makers' Association, died, at his home in Philadelphia, the morning of the 6th inst. His wife and two sons survive him.

AT the last term of the West Virginia Supreme Court a decision was handed down which is of unusual general importance, and of particular importance to land owners entitled to natural gas for domestic use, under what are generally designated "free gas clauses." The case was called in Harrison county under the title of Hall *v.* The Philadelphia Company, and the holding of the court is that the free gas is limited to the interior of the dwelling house, and one inclosed light on the exterior. This, of course, does away with the use of open outside lights and outside fires, and should prevent the needless and extravagant waste of gas. The syllabus of the case is:

"1. A clause in a lease for oil and gas purposes, securing to the lessor 'free gas for domestic purposes,' read in the light of an established usage or custom known by the parties to the contract, is construed as conferring upon the lessor right to have gas for heat and light in his dwelling house and for the maintenance of one light at such a point as he may designate within the curtilage.

"2. Though at the date of the lease it was customary and usual for lessors to maintain, under such clause, what is known as an open, storm or flambeau light in their yards, the clause is construed, in view of the wastefulness and extravagance in the use of gas by such means, as conferring upon the lessor, right to maintain only an inclosed or economical burner for light in the yard.

"3. The legal remedy for violation of such a covenant being inadequate, equity will enforce specific performance thereof by appropriate remedies."

"ATHOL (MASS.) may not be the biggest place on the gas map," so writes a correspondent in that busy place; "but nevertheless its Gas Company is doing all that it can to help things boom. In proof of this I submit the following: Miss R. Sherley Fisher, of Gloucester, will take charge of the domestic science work in the Athol High School next September. Plans for the new course are being made by Supt. W. Scott Ward, who is providing the equipment to be installed in the old chemical laboratory at the High School building. Tables for the work are being made by L. Morse & Sons, and cookers will be supplied free of charge by the Athol Gas and Electric Company. The new course at the High School is to be optional for all of the girls, and is being introduced to provide the girls at the High School with a course that will be practical in every way. In all about 20 freshmen have signified their intention of taking the course, and 16 girls from the upper classes are expected to take some part of the course this year. Miss Fisher is a graduate of the household arts department, of Framingham Normal School, and last year was assistant supervisor of the work in Haverhill High School, and comes here highly recommended."

THE new Parryville (Pa.) Consolidated Gas Company's plant will be constructed forthwith. In canvassing for consumers the Company declares that it will not make any charge to either tenant or landlord for putting in a service pipe between the street mains and the cellar of a property.

IN a fortnight or so gas men, passing at night through the Capital City of New Jersey, will know they are going through Trenton, if they will keep an ordinary lookout to the north of the Pennsylvania depot. The sign, of T-shape, will be run along the roof of the Public Service Company's offices, and its top line will carry the word Trenton, the words Gas and Electric will be lined along the upright, and the letters Co. will form the base. The word Trenton will remain permanently illuminated, and the balance of the wording will be shown on the flashlight order. To properly illuminate it 268 tungsten lamps will be required.

THE proprietors of the American Gas Construction Company, Des Moines, Ia., have been awarded the contract for the construction of the gas plant which is to be operated in Hillsboro, Ills., by the Southern Illinois Light and Power Company. It is specified that the works will be in readiness to supply gas by January 1, 1914, and it is estimated that $60,000 will have been invested before the system is completed.

MR. HENRY A. SAGE, who about 1903 consolidated the gas and electric lighting interests of Ogdensburg, N. Y., under the corporate title of the Ogdensburg Power and Light Company, died at his home in Easton, Pa., the afternoon of the 7th inst. He was in his 82d year.

"THE City Auditor ot Key West, Fla., has been instructed to communicate with the proprietors of the Key West Gas Company, informing them that, within 30 days the promised street lights must be in position, that the 2 per cent. tax on the gross receipts of the Company for the past year must be paid as stipulated in the franchise, and that the city intends to exact payment for the 500,000 cubic feet of gas which was to have been furnished free of charge, but which has not been so furnished.—R."

The Market FOR GAS SECURITIES.

The market for Consolidated gas was of the sturdy sort all through the week, although the net change as between the weeks is less than ¼ point. Consolidated came in this morning (Friday) at 131 to 132, ex. div. of 1½ per cent. The bond inquiry remains quite in evidence. Brooklyn Union seems rather more firmly held, but it is quite inert as to actual transfers. The nominal quotation is 127 to 130; and, in fact, it should be at least 25 points higher. Peoples, of Chicago, is fairly firm, at 114½ to 114¾, and one may look for an appreciable rise in this security, now that its proposed financing for its new plant construction is in satisfactory progress, and that its earnings are at least 3 per cent. above its requirements in all respects, even as to dividend disbursements.

Lacledes are still on the low side, but the Company's net income would easily assure dividend payments of close to 9 per cent. per annum. Pacific Gas and Electric, despite some positive effort in Chicago to cause it to break 40, which were not successful, remains steady. United Gas Improvement Company maintains its even tenor, and some Philadelphia financiers delare that another increase in its capitalization may be looked for, as a Christmas token. However, the quotation for it to-day (171 to 173) is, considering surplus value, going business and the like, decidedly on the low side. A 4 per cent. basis (200) would seem rather nearer the right mark. The financial clown (Bay State Gas) of the gas share market is quoted at 20 cents. A recent sale of con. 4½'s, Baltimore Gas, was made at 93. Which looks that these securities are well in favor.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

AUGUST 18.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par alue of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$99,816,500	100	131	132x
Central Union Gas Co.—				
1st 5's, due 1927, J. & J.	8,500,000	1,000	101	103
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	105	106
Mutual Gas Co.	8,600,000	100	157	157
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	99	101
New York & Richmond Gas				
Co. (Staten Island)	1,500,000	100	59	62
1st Mtg. Gold Bds. 5 p. ct.	1,500,000	—	98¼	100¼
New York and East River—				
1st 5's, due 1944, J. & J.	8,500,000	1,000	103	105
Con. 5's, due 1945, J. & J.	1,500,000	—	98	100
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	100	102
Standard	5,000,000	100	102	104
Preferred	5,000,000	100	93	94
1st Mtg. 5's, due 1931, M. & N.	1,500,000	1,000	91	93
The Brooklyn Union	15,000,000	1,000	127	130
1st Con. 5's, due 1948, M. & N.	15,000,000	—	106¾	107
Yonkers	299,650	500	130	—
Out-of-Town Companies.				
Binghampton Gas Works	450,000	100	—	—
" 1st Mtg. 5's	509,000	1,000	97	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47¼	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	59	60
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed				
Gold Bonds	7,000,000	1,000	104	106¼
Columbus (O.) Gas Co., 1st				
Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. &				
Heating Co.	1,682,750	100	90¼	91
Preferred	3,036,500	100	75¼	80
Essex and Hudson Gas Co.	6,500,000	—	183	186
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co.,				
1st Mtg. 5's	1,350,000	1,000	100	101
Hartford	750,000	25	190	200
Hudson County Gas Co., of				
New Jersey	10,500,000	—	130	133
" Bonds, 5's	10,500,000	—	104	106
Indianapolis	2,000,000	—	7	80
" Bonds, 5's	2,650,000	—	90	93
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	290,000	1,000	97	100
Cincinnati Gas and Electric				
Co.	29,500,000	100	87	90
Kansas City Gas Light Co.,				
of Missouri	5,000,000	100	—	86
Bonds, 1st 5's	3,822,000	1,000	96½	99
Laclede Gas Co., St. Louis.	10,000,000	100	94	96½
Preferred	2,500,000	100	—	102½
Bonds	10,000,000	1,000	102½	103
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,870,000	50	130	130
Madison Gas and Electric Co.				
" 1st Mtg. 6's	400,000	1,000	106	
Massachusetts Gas Compan-				
ies, of Boston	25,000,000	100	91	91¼
Preferred	25,000,000	100	91½	92
Montreal L. H.& P., Canada	9,000,000	100	203	204
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	97	98
Bonds, 6's	6,000,000	—	127	128
New Haven Gas Co.	5,000,000	25	189	190
Peoples Gas Lt. & Coke Co.,				
Chicago	25,000,000	100	114½	114¾
1st Mortgage	20,100,000	1,000	102	102½
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104¾	105½
Pacific Gas and Electric Co.	15,500,000	—	40	41
St. Joseph Gas Co.—				
1st Mtg. 5's	1,000,000	1,000	96	98
St. Paul Gas Light Co.	2,500,000	100	—	—
1st Mortgages, 6's	650,000	1,000	104	105
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	3,447,000	1,000	94	96
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	101	103
United Gas Imp. Co.	55,802,960	50	172	174
Washington (D. C.) Gas Co.	1,600,000	200	450	460
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	—	—

MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

American Gas Institute.—Annual meeting, Richmond, Va., October 15-17, 1913. Officers: President, W. R. Addicks, New York City. Secretary, Geo. G. Ramsdell, 29 West 39th st., N. Y. City.

Canadian Gas Association.—Annual meeting Sept. 1913. Officers: President, Arthur Hewitt, Toronto, Ont.; Secretary and Treasurer, John Keillor, Hamilton, Ont.

Empire State Gas and Electric Association.—Annual meeting, New York City, Oct. 8, 1913. Officers: President, C. G. M. Thomas, Long Island City, N. Y.; Secretary, C. H. B. Chapin, 29 W. 39th street. New York City.

Gas Meeters.—Monthly Section Meetings; Grand Commissioner, Will. W. Barnes. East Orange, N. J.; Gen'l Sec'y, H. Thurston Owens, La Crosse, Wis.; New York Section, Chairman, W. H. Pettes; Secretary, G. E. Smith, Sipp Avenue, Jersey City, N. J. Philadelphia Section; Chairman, Stanley Grady; Secretary, H. E. Stiteler, Broad and Arch streets. Cleveland Section, Chairman, F. R. Hutchinson; Secretary, Wm. Holtz, East Ohio Gas Co. New England Section, Chairman, T. W. Jennings, Boston; Sec., F. K. Wells, 69 Broad street, Boston. Winona Section, Winona, Minn., W. F. Clausen, Chairman. Bethlehem Section, Trueman Weithnecht, Chairman; Sec.-Treas., Truman Buss, South Bethlehem, Pa.

Guild of Gas Managers of New England.—Annual meeting, March, 1914. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, Walter G. Africa, Manchester, N. H.; Secretary, H. K. Morrison, Brockton, Mass.

Illinois Gas Association.—Annual meeting, March 19th and 19th, 1914. Chicago, Ills. Officers: President, W. F. Barrett, Chicago, Ills.; Secretary-Treasurer, Horace H. Clark, 115 No. Oak Park avenue, Oak Park, Ills.

Illuminating Engineering Society.—Annual meeting,———— September, 1913. Meetings of Sections, monthly. Pres., Preston S. Millar; General Secretary, J. D. Israel, 29 W. 39th street, New York City. Sections: New York, Secretary, C. L. Law, 124 West 42d street. New England, Secretary, H. C. Jones, 10 High street, Boston, Mass. Philadelphia, Secretary, L. B. Eichengreen, Broad and Arch streets. Chicago, Secretary, J. B. Jackson, 28 North Market street. Pittsburgh, Secretary, J. C. Mundo, Oliver Building.

Indiana Gas Association.—Annual meeting, March —— —— 1914. Terre Haute. Officers: President, A. S. Cooke, Terre Haute; Vice-President, A. C. Blinn, Evansville; Secretary-Treasurer, Philmer Eves, Indianapolis.

Iowa District Gas Association.—Annual meeting, May, 1914; ———— Officers: President, B. C. Adams, Lincoln, Neb.; Secretary, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, October—— 1913. ———— Officers: President, L. O. Ripley, Emporia, Kas.; Secretary and Treasurer, W. H. Fellows, Leavenworth, Kas.

Michigan Gas Association.—Annual meeting, September, 17, 18, 19, 1913; ———— Officers: President, W. S. Blauvelt, Detroit, Mich; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April, 1914; Mexico, Mo. Officers: President, P. A. Bertrand, Joplin, Mo.; Secretary and Treasurer, P. W. Markham, Brookfield, Mo.

National Commercial Gas Association.—Annual meeting and gas show, Dec. 1-6, 1913. Philadelphia, Pa. Officers: President, C. W. Hare, Philadelphia Pa.; Secretary, Louis Stotz, 29 West 39th street, New York City.

Natural Gas Association.—Annual meeting, St. Louis, Mo., May 19 and 20, 1914; Officers: President, E. L. Brundrett, Kansas City, Mo.; Secy-Treas., T. Clive Jones, Delaware, O.

New England Gas Association.—Annual meeting, February, 18th and 19th, 1914, Boston. Officers: President, T. H. Hintze, Providence, R. I.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

New Jersey State Gas Association.—Annual Meeting, July —, 1913, Asbury Park N.J. President, C. F. Butcher, Freehold, N. J.; Sec'y-Treasurer, O. F. Potter, Newark, N. J.

Ohio Gas Association.—Annual meeting, February ——— 1914, Columbus, O.; President, John M. Garard, Columbus, O.; Secretary, L. B. Denning, Columbus, O.

Oklahoma Gas, Electric and Railway Association.—Annual meeting, Oklahoma City, May, ——1914. President, F. E. Bowman, Ada; Secretary-Treasurer, H. V. Bozel, Oklahoma City.

Pacific Coast Gas Association.—Annual meeting, San Jose, Cal., September 16, 17, 18, 1913. Officers: President, Henry E. Adams, Stockton, Cal.; Secretary-Treasurer, Henry Bostwick, 445 Sutter street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, Allentown, Pa., April ———, 1914; Officers, President, J. A. Frick, Allentown, Pa.; Secretary-Treasurer, W. O. Lamson, Jr., West Chester, Pa.

Society of Gas Lighting.—Annual meeting Dec., 11, 1913; monthly meetings, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 29 West 39th street, New York city

Southern Gas Association.—Annual meeting, Mobile, Ala., April 4, 1914. Officers: President, James Ferrier, Rome, Ga.; Secretary-Treasurer, E. D. Brewer, Atlanta, Ga.

Southwestern Electrical and Gas Association.—Annual meeting. May———— 1914, Galveston, Tex. Officers: President, G. H. Gifford, Fort Worth Tex.; Secretary H. S. Cooper, 405 Slaughter Bldg., Dallas, Tex.

Wisconsin Gas Association.—Annual meeting, May ————1914, Milwaukee, Wis. Officers: President, Ewald Haase, Milwaukee, Wis.; Secretary-Treasurer, Henry Harman, Milwaukee, Wis.